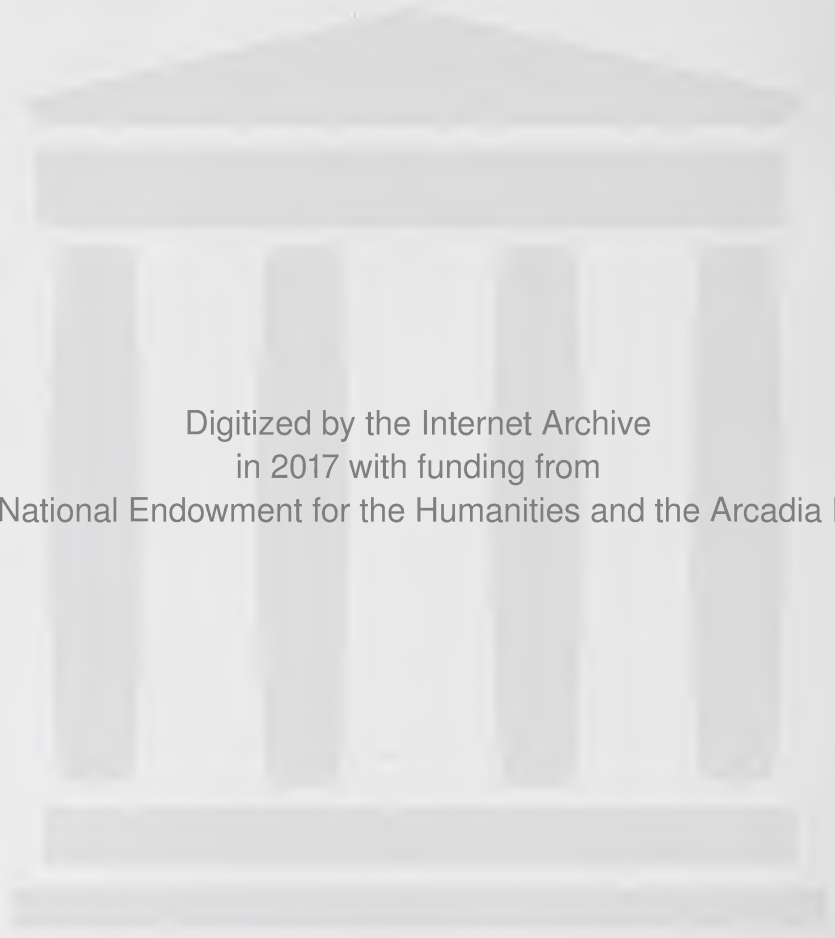




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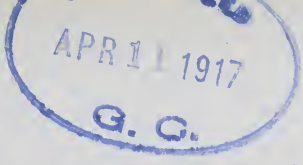


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DOCTOR EVELYN F. FRISBIE
PRESIDENT NEW MEXICO MEDICAL SOCIETY.

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The New Mexico Medical Journal

Volume XV OCTOBER, 1915 No. 1

E . D . I . T . O . R . I . A . L

The New Mexico Medical Journal is not responsible for the opinions expressed by any of its contributors.

You want a larger and better Journal
YOU CAN HAVE IT BY WRIT-
ING OUR ADVERTISERS: "I
SAW YOUR AD IN OUR STATE
JOURNAL."
FAVOR THOSE WHO FAVOR US.

AN APOLOGY.

In our last issue we were unintentionally discourteous to the out-going president, Doctor W. T. Joyner of Roswell. Doctor Joyner's excellent president's address was made to occupy a secondary position in the columns of The Journal, due to the disregard of the make-up orders issued to a new printer. In addition to this the doctor's initials were wrongly stated as "W. R." instead of the correct ones, "W. T."

We deeply regret that these errors should have occurred and we are only too glad to make this correction and to offer our humble apologies to our esteemed friend and co-worker, Doctor W. T. Joyner.

THE MANAGING EDITOR.

PULL TOGETHER.

A few days since the managing editor received a communication from one of the members of the New Mexico Medical Society, suggesting that we carry a column of personal news and news notes in The Journal. We have long been conscious of the fact that a news notes column would be a most welcome addition

to the pages of The Journal and we have repeated urged the secretaries of the various county societies to send in their reports each month for publication. The results have not been at all what we had desired nor did they even approach what we had dared to hope for. We again, therefore, urge the county society secretaries as well as all members to send us their interesting items, case reports, news notes and any other matter that may interest the other fellow across the way. We shall be only too glad to get them and publish them as items of interest and certainly they would help to make a better and more useful Journal.

We cannot refrain just here from again reverting to the subject of the advertiser. The users of our columns will not be users long if we do not show some responsive feeling. It does not follow that our members MUST purchase from our advertisers, but it should follow that the preference be given to them. It is absolutely impossible to conduct a successful journal without advertising and it is just as impossible to obtain this advertising if our members do not show some appreciation of the advertiser. Write "I saw it in the New Mexico Medical Journal" whenever the opportunity offers and thus help The Journal. Let us all pull together.

COUNTING THE WORLD'S COST.

In these days of nearly world-wide conflict between nations, it is reassuring and comforting to know of one campaign in which all civilized nations are allies in a common cause. The neutrality of science has been a subject of frequent comment, especially during the past year. The fight between the human race and disease is carried on without regard to diplomatic agreements or international boundary lines. Probably the only organizations or institutions in existence today which are carrying on their work regardless of warring nations are those engaged in scientific work. Of these, the International Office of Hygiene in Paris is perhaps the most conspicuous example. The British representative, Dr. R. W. Johnstone, now acting as official epidemiologist of the international office, has just issued a report showing the progress of plague, cholera and yellow fever throughout the world, as shown by the reports received and tabulated at the Paris office. This report is complete for 1913, the 1914 material having not yet been completed. According to this report, bubonic plague prevailed to some extent in 1913 in almost every part of the world, there being as yet no evidence that the present world-wide epidemic of this disease, which started about twenty years ago, has begun to subside. A marked decrease was shown in India, where in 1911, there were 846,873 deaths from

this disease, while in 1913 there were only 217,148. On the other hand, the reports for 1914, so far as received, show an increase. Cholera was also less prevalent in India in 1913 than in previous years. There were no serious epidemics of yellow fever during the year in any part of the world. As the London *Lancet* well says, in commenting on Dr. Johnstone's report, these annual summaries possess more than a passing interest. They place on permanent record many facts, the true value of which is more likely to be recognized in the future than at the present time. They will be of service as works of reference to future students of bubonic plague, when the great pandemic now prevailing has spent itself and disappeared. The same remark holds good as regards cholera and yellow fever, both of which may before long, we hope, come to be placed on the list of disappearing diseases. The time will come, predicts *The Journal of the American Medical Association*, as scientific knowledge increases and its more thorough practical application becomes possible, when the only knowledge the human race will have of these diseases, which have devastated mankind since the dawn of history, will be the records of past epidemics. Our knowledge of such epidemics in previous generations is vague, and is based largely on general statements. Definite records from year to year of the gradual decrease of preventable diseases will be of the greatest scientific and historic value to future generations.

FLIES AS A CAUSE OF INFANT DIARRHOEA.

Modern public health work is necessarily a mixture, in varying proportions, of practical sociology and applied public hygiene. Today, when cooperation and economy in administration are being sought for in all lines, it is not strange that a combination of practical philanthropists and public officials should be regarded as desirable in attacking a social problem. An excellent illustration of such cooperation is to be found in the study of the relation between flies and diarrheal disease in infants, being made under the joint direction of the Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor, and the Department of Health of New York City. A report of the second year's investigation on this subject is a valuable contribution to our knowledge regarding the relationship between flies, dirt, feeding and diarrheal diseases among infants. The problem, as stated in the report, involves an effort to answer the following questions:

Is the house fly the chief carrier of diarrhoea to New York babies, or has it more deadly rivals?

Should some of the energy now expended in fly swatting be diverted to other details of home hygiene, or should the hue and cry after this insect pest be redoubled in volume?

Do the fly-exposed infants suffer more than the infants in dirty homes, or than infants who are artificially fed?

In a word, the object of the two years' inquiry is to determine the relative importance of the fly in the causation of infant diarrhea. We shall not attempt to discuss in detail

the many interesting facts presented, the tabulations given and the methods of investigation and education followed. The conclusions, as summarized in the report, show that almost twice as many infants have diarrhea among fly-exposed as among the fly-protected infants, and that almost twice as many infants have diarrhea in dirty homes as in clean homes. On this showing, the relative importance of flies and dirt in the production of this disease seems to be about the same. Artificial feeding, however, was found to be a more important factor than either of the others. Almost two and one-half times as many infants were attacked by diarrhea among artificially fed as among breast-fed infants. If it had not been for careful selection of food and instruction to mothers, the proportion of cases among artificially fed infants would have been even higher. As it is, the influence of flies and dirt combined is of about the same importance as artificial feeding alone in the production of this disease. Artificial feeding and dirt combined are responsible for a still larger percentage of the cases, three and one-half times as many artificially fed infants in dirty homes being attacked, as in the case of breast-fed infants in clean homes. While the report shows that flies form one of the three main causes for diarrheal diseases among infants, and constitute one of the two lesser causes out of the three, the demonstration that twice as many infants are the subject of diarrheal diseases among fly-exposed as among fly-protected in-

phants is, in the opinion of *The Journal of the American Medical Association*, ample justification for continued prosecution of the antily campaign. The ideal condition for the reduction of the infantile death rate to the minimum is breast feeding in a clean and fly-protected home for each baby.

CONTROLLING CANCER IN ENGLAND.

Portsmouth was the first municipality in England to undertake a public educational campaign for the control of cancer and it would appear that the measures adopted in 1913 are already taking effect. The annual report of the Medical Officer of Health, Dr. A. Mearns Fraser, for the year 1914, which has just been received, states that there were only 197 deaths from cancer in Portsmouth last year as compared with 230 in 1913. This decrease, which occurs in the face of an increase of population, is hailed with satisfaction by the Portsmouth sanitary authorities as justifying their efforts to reduce the cancer death rate by persuading persons who are attacked with this disease to avoid delay and to seek treatment before it is too late for more than palliative measures. Dr. Fraser reports that from statements made to him by local medical men the publication of circulars and newspaper articles by the Health Department has been instrumental in inducing a number of persons suffering from early operable cancer to secure treatment, the

result of which it is hoped will be permanent.

When the educational measures were put in force two years ago, the cancer death rate of the city had for a long period been increasing. Twenty years ago the average death rate from cancer in Portsmouth was 6.79 per 10,000 of the population, but in 1913 it had risen to 9.16 per 10,000. In that year the total number of deaths was only 34 less than were caused by tuberculosis. While admitting that the increase in the recorded cancer death rate might have been caused in part by improved methods of diagnosis, the Health Committee of the Portsmouth Town Council nevertheless believed that the present number of deaths was unnecessarily large, and they felt it incumbent to adopt whatever measures might lessen the ravages of the disease. The initiative came from Dr. Charles P. Child, senior surgeon of the Royal Portsmouth Hospital and a member of the Health Committee of the Town Council. As early as 1906 Dr. Child in his book "The Control of the Scourge" had given to the public the benefit of his extended experience with cancer. At his suggestion the Portsmouth authorities in 1913 began a campaign of public education under the official auspices of the Health Department. The methods adopted included the monthly publication in the local newspapers of articles regarding cancer and the printing and distribution of a Health Department circular on the subject. Arrangements were made for periodical lectures to midwives,

nurses, and to those engaged in social work in Portsmouth. The Health Department further made provision for free microscopic examinations and reports on suspected cancerous growths in order to assist physicians in immediate diagnosis in the case of patients who were unable to pay for such laboratory service. The experience of the Portsmouth authorities had been that by far the majority of patients who presented themselves at hospitals suffering from cancer exhibited the disease in a stage too advanced to be cured. It was held that the reason for this delay in seeking advice was not as a rule because patients feared operation, but because they were ignorant that they were suffering from anything serious until they began to suffer pain. The fact that cancer at its onset is almost always painless should be widely realized in order that the public may learn the importance of other symptoms which will enable them to recognize the disease in the early stages when it can nearly always be successfully removed by competent surgery.

Dr. J. Dale Graham of Elephant Butte writes us that "During our epidemic of diphtheria here we found it advisable to enforce such a strict quarantine against children going from house to house or playing with children from other families that 'suppurative conjunctivitis' always present to a considerable degree in the Mexican quarter disappeared as if by magic."

News Notes

Dr. J. O. Hatcher has recently located in Hillsboro, Sierro county, and according to the Sierra County Free Press will operate a small hospital there.

Dr. James, formerly of Bridgeport, Ala., is now at Fairview, Sierra County.

Dr. W. C. Threlteed, formerly of Ada, Okla., is now practicing at Hot Springs, Sierra Co.

Dr. Frank I. Given of Hillsboro, N. M., recently suffered a fracture of the clavicle and has been in a Denver hospital taking treatment.

Dr. Fries of Hot Springs recently lost a daughter of 16 years by typhoid fever.

FIFTY FALSELY LABELED MEDICINES

**Federal Courts Condemn Goods of Fine Many
Patent Medicine Manufacturers. Fifty
Patent Medicines Proceeded Against
for Fraudulent Claims as to
Curative Powers of Products.**

Washington, D. C., Oct. 12.—More than half a hundred legal actions have been terminated successfully under the Sherley Amendment to the Food and Drugs Act, which prohibits false and fraudulent claims as to the curative or therapeutic effects of drugs or medicines. Criminal prosecutions against the manufacturers were brought in 25 cases, but in 31 instances the falsely and fraudulently labeled medicines were seized while in interstate commerce. Claims made by the manufacturers for the curative powers of these preparations ranged from tuberculosis, smallpox and diphtheria to coughs, colds and scalp diseases. A number of other criminal prosecutions and seizures are pending in various Federal courts throughout the United States because of alleged violations of the Sherley Amendment.

similar to those which have already been tried. The officials charged with the enforcement of the Foods and Drugs Act are of the opinion that the evils of the patent medicine business can be stopped only by the most drastic action.

It is pointed out that traffic in medicines for which false and fraudulent claims are made is not only an economic fraud of the worst kind, in that a worthless preparation that costs but a few cents is frequently sold for a dollar or more a bottle, but that health, and even life, is endangered by failure to secure the service of a physician in such serious diseases as tuberculosis, diphtheria, pneumonia and scarlet fever, until too late, because reliance may have been placed in the curative powers of some worthless preparation which is claimed to be a never-failing remedy. The deluded victim may not realize his danger until the disease has reached a stage too far advanced for even the ablest physicians to cope with it. Effective treatment depends in most cases on applying it during the early stages of the disease.

Suggestive Name of "Family Physician" Fails to Save This Preparation.

The Houchens Medicine Company of Baltimore, Md., pleaded guilty to the charge that a preparation called "Family Physician" and shipped by them into interstate commerce was falsely and fraudulently labeled. Among the many diseases for which this medicine was recommended by the manufacturers in statements appearing on the labels and accompanying circulars were diphtheria, scarlet fever, typhoid fever, smallpox, bronchitis, neuralgia, croup and all diseases of the throat and lungs. The following quotations from the label, carton, or circular are interesting: "The Public is hereby assured that this is the Genuine and Original Family Physician. * * For fever you need not give anything else but this Medicine, it will keep the rash out itself. * * * For cases of Smallpox take

plenty and often—Use freely. Give no hot teas; just give the medicine and what pimples are under the skin will come out, the rest will be carried off by the medicine. * * * Also a wonderful and positive remedy for dyspepsia, keeps measles out nicely, regulates the bowels without trouble, and by purifying the blood prevents your liability to disease."

Analysis of the product, which was claimed by the manufacturer to be effective in the treatment of so many virulent and contagious diseases, as well as a variety of minor ills, showed that it was a sirup containing 19.2 per cent non-volatile mater, 8.9 per cent alcohol, anise, and a vegetable cathartic drug. The Government, therefore, charged that the medicine did not contain ingredients or medicinal agents effective for the relief and cure of the diseases which it was claimed to cure. The court imposed a fine of \$75.

Remarkable Claims for Dr. H. A. Ingham's Vegetable Expectorant Nerve Pain Extractor.

A plea of guilty was entered by H. A. Ingham and Co., of Vergennes, Vt., to the charge that statements and claims as to curative powers of a product called "Dr. H. A. Ingham's Vegetable Expectorant Nerve Pain Extractor" were false and fraudulent. An analysis of a sample of the product by the Bureau of Chemistry showed the same to contain alcohol, 86 per cent; opium alkaloids, camphor, capsicum, and vegetable extractive matter. The Government, therefore, alleged that the medicine did not contain ingredients or medicinal agents effective, as the labels or circulars asserted, to subdue raging fever, or to cure typhoid fever, lung fever, scarlet fever, rheumatic fever, cholera, dysentery, sunstroke, diphtheria, bleeding at the lungs, nervous exhaustion, or piles, or to prevent fits of apoplexy and epilepsy when coming on, or to heal without inflammation or suffering all wounds, sprains, or burns, or to break up a felon, or

to cure congestion or the lungs, pleurisy, fits of apoplexy, chronic rheumatism, paralyzed limbs, and croup.

It was also alleged by the Government that the statements "For teething and restless children, it is not only safe and harmless, but positively beneficial; it agrees with the most tender child or feeble infant," were false and misleading in that they were of such nature as to mislead the purchasers into the belief that the article contained no harmful or poisonous ingredient, whereas, in fact it did contain morphin and other opium alkaloids of a poisonous and deleterious nature, such as might prove harmful and deleterious to the health of tender children and feeble infants, and other persons, if consumed by them. The court fined the defendant \$100.

Seized Four Thousand Bottles of "Father John's" Medicine.

Four thousand and ninety-two bottles of "Father John's Medicine" were seized in Philadelphia, Pa., it being alleged in the libel that the labels on the bottles and on the paste-board packages containing the bottles bore statements regarding the curative effects of the medicine that were false and fraudulent. Claims were made by the manufacturers for the efficacy of the medicine in the treatment of consumption, coughs, colds, croup, asthma, bronchitis, sore throat, whooping cough, pneumonia, catarrh, rickets, and a number of other ailments. A judgment of condemnation and forfeiture was entered, and it was ordered by the court that the product be delivered to Carleton and Hovey Company, Lowell, Mass. upon payment of all the costs in the proceedings and the execution of a bond in the sum of \$5,000, to insure that the goods would not be sold unless truthfully relabeled.

Jury Says "Guilty" for Misbranding "Bad-Em-Salz."

A verdict of "guilty" was rendered against the American Laboratories, a corporation located at Philadelphia, Pa., for shipping into interstate commerce a product called "Bad-

Em-Salz" which it was alleged was falsely and fraudulently labeled. An analysis of a sample of the product showed that it consisted of common salt, Glauber salt, baking soda, and a small amount of tartaric acid. It was claimed by the manufacturers that this preparation reproduced the medicinal properties of the great European springs famous for centuries for the cure of diseases of the stomach, intestines, liver, kidneys, or bladder, and that it represented the medicinal agents obtained by the evaporating of the water from famous European springs. The Government alleged among other things that these claims were false and misleading. It was also alleged that the statements in the circular indicating that the preparation contained ingredients or medicinal agents effective for dissolving gall stones, for the prevention of gastritis, for curing diabetes, for preventing or checking chronic inflammation of the kidneys, and for relieving catarrh of the bladder, were false and fraudulent. A fine of \$100 was imposed by the court.

Long List of Other Misbranded Medicines.

The following list includes other preparations against which the Government's charge that they were falsely or fraudulently labeled was sustained by the Federal courts. Statements were made on the labels of, or on the circulars accompanying, the preparations intended to make the purchaser believe that the medicines were effective cures for a great variety of diseases for which they were recommended by the manufacturers or promoters. The main allegations of the Government were upheld by the courts and judgment accordingly entered in connection with each of the following preparations:

Radam's Microbe Killer.

Hilton's Specific.

Smith's Agricultural Liniment.

Dr. Sullivan's Sure Solvent.

Russell's White Drops.

Stramoline.
 Wild Cherry Pepsin.
 Moreau's Wine of Anise.
 Dr. Herman Koch's Brand Phosphate, Celery and Gin Compound.
 Swissco Hair and Scalp Remedy.
 Cod Liver Oil with Syrup of Tar.
 Dr. Mozley's Lemon Elixir.
 Sa-Yo Mint Jujubes.
 Gray's Glycerine Tonic Compound.
 Dr. Martel's Female Pills.
 Quickstop, Frye's Remedy.
 Seawright's Magnesian Lithia Water.
 Hill's Aromatic Ext. Cod Lived Oil (Hollander-Koshland Co.)
 Black's Pulmonic Syrup.
 Tetterine.
 Laxative Quinine Tablets.
 Mrs. Joe Person's Remedy.
 Maignen Antiseptic Powder.
 Granitonic Scalp Food-Hair Food.
 Dr. David Kennedy's Cal-Cura Solvent.
 Schenck's Pulmonic Syrup.
 Keller's Flaxseedine.
 Tutt's Pills.
 Universal Rheumatic Remedy.
 Green Mountain Oil.
 Weber's Genuine Alpine Herb Tea.
 Montague's Liniment.
 Coe's Cough Balsam.
 White Stone Lithia Water.
 Kalamazoo Celery & Sarsaparilla Compound.
 Quality Damiana Compound.
 Dennis Eucalyptus Ointment.
 Cassidy's 4X The Great Blood Purifier.
 Porter's Antiseptic Healing Oil.
 Ballard's Horehound Syrup Comp.
 Dr. Shoop's Night Cure.
 Dr. Shoop's Cough Remedy.
 Dr. Shoop's Restorative.
 Rheumacide.
 Rice's Mothers' Joy Salve.
 Milam.
 Old Jim Fields Phosphate Dill and Gin.
 Stuart's Buchu and Juniper Compound.
 Ozomulsion.
 Jones' Break Up.
 Carswell's Liver Aid.
 Dr. Shoop's Twenty Minute Cough Remedy.
 Rogers' Consumption Cure and Cough Lozenges.
 Rogers' Inhalent.

MINUTES OF THE GENERAL SESSIONS OF THE THIRTY- FOURTH ANNUAL MEETING OF THE NEW MEXICO MEDICAL SOCIETY, HELD AT EAST LAS VEGAS, N. M., SEP- TEMBER 6-8 1915.

The first session of the New Mexico Medical Society was called to order in the rooms of the Commercial Club, East Las Vegas, at 2:00 p. m., on September 6th. In the absence of President Joyner, First Vice-President Evelyn F. Frisbie, Albuquerque, presided.

Invocation by Rev. Norman Skinner: "Eternal God, Thou art Light and Truth and we, Thy children, seek from Thee the illumination of Thy spirit divine that our minds may apprehend Thy purposes and in reverent love follow Thy ways. O Lord, our God, how excellent is Thy name in all the earth, who hast set Thy glory above the heavens. When we consider the heavens, the work of Thy fingers, the moon and stars, which Thou hast ordained, what is man that Thou art mindful of him, or the son of man that Thou visitest him. Thou madest him a little lower than God. Thou hast crowned him with glory and honor. Thou hast set him over the works of Thy hands. O Lord, our God, how excellent Thy name in all the earth. Lift up our hearts, we pray Thee, to more courage and enthusiasm in pursuing the calling whereto Thou hast called us. We give Thee hearty thanks that Thou hast brought such progress and light into human minds for the elevation of the race

through the healing art. We praise Thy name for the great examples of heroism and of love, of sympathy and of devotion, which have been manifested in the calling of the physician. We bless Thy name for all these high purposes and for the stern resolution that has been shown in following out duty and honor and truth. We call upon Thee for Thy heavenly grace to rest upon Thy children here. May they understand that they are workers together with God. In the smile of His love may they walk and toil and study and devote themselves to His purposes. We, Thy human children, depend upon Thee, Almighty God, Thy eternal grace upon this organization, the State Medical Society, not only upon those who are here present, but also upon those who are absent, that the whole brotherhood of the healing art and science may be as one in mind and heart sharing Thy guidance and inspiration. Grant that there may be large progress of understanding and enlightenment in these days before us, and cheer all hearts in their toils and struggles by a sense of Thy sympathy with them in that toil. May increasing light be given upon the mystic organism of the human life, body and soul, that thus toiling together with Thee they may ever feel that there is with them the healing of the seamless dress whose touch is by every bed of faith, and so may their hearts have comfort and joy and great success in the art to which they have given their lives. So abide with us, Almighty God, for Thy holy name's sake. Amen."

Address of Welcome on behalf of the city:

Hon. W. J. Lucas: "Mr. President and Doctors of New Mexico. It is a great honor and privilege, this that has been assigned me, to extend to you a welcome on behalf of the people of Las Vegas. A fair share of the bodies of the professions and the business men of the state have selected this beautiful community as the place in which to hold their meetings and we are always highly gratified at the honor they thereby confer upon us, but there are none of them who can claim such a large measure of our cordial hospitality as you, for to a great degree it is out of meetings such as this that civilization has made its halting progress. In such manner has knowledge been disseminated and interest stimulated in the work of your great immortals, your Harveys and your Listers, your Kochs and your Pasteurs, and your Ehrlichs, Reeds and Gorgases, and so on all down the great, glorious list. Those achievements are about all that remain to us of our hitherto much vaunted civilization after its almost complete collapse during the past year of accumulated horrors. But it is not alone because of the achievements of your great men that you are entitled to unusual consideration. The wisest among men tell us that they are greatest in service to humanity who put a song into the hearts of men, and when are such songs put into the hearts of men as when among those dearest to us the crippled are aided and made useful, pain and suffering allevi-

ated, or perchance, one preserved to us who would otherwise be called away.

The task of entertaining you is a most agreeable one. Whether because of the gravity imposed upon you by the tremendous responsibility you bear while actively engaged with your patients, or whether because of the degree of culture you attain in acquiring the very thorough education necessary to the members of your profession, or whether because of your rigid code of ethics, which in the last analysis is but the code of a gentleman in the old and full significance of the term, there are none that can quite compare with you doctors as agreeable guests and as genial companions. A few days ago it was my misfortune to be afflicted with an obstinate case of what I believe you doctors term "renal calculi" and at most unseemly hours of the night I sent out S. O. S. calls for the doctor, and the welcome I learned to extend to that doctor and his hypodermic is the measure of the welcome which the people of Las Vegas extend to you. (Applause).

Address of Welcome on behalf of the Las Vegas Medical Society.

Dr. W. E. Kaser: "It gives me pleasure, as spokesman of the Las Vegas Medical Society, to welcome the New Mexico State Medical Society to Las Vegas for its 34th annual meeting. I wish to assure you of the pleasure it gives us to have you with us. We hope you will have a pleasant and a profitable visit. We are glad to see the older members who have so long been identified

with the New Mexico Medical Society that the meeting would not seem a success if they were not here. We are pleased to be the first to welcome into our fraternity those newer members who have but recently become associated with us, and I wish to presume on my office and in behalf of the New Mexico Medical Society, as well as of the Las Vegas Medical Society, to extend greetings to the fraternal delegates who are with us. Their presence evidences and extends the friendship existing between our societies. To express our pleasure at this opportunity to renew our acquaintance with our colleagues from the neighboring states whom we have become so accustomed to having with us and to greet those other practitioners from out of the state whose acquaintance we are making at this meeting and to express the wish that we shall see them again, is a pleasure. You are all most heartily welcomed by the Las Vegas Medical Society. We trust that this visit of yours may prove so agreeable that it may please you some time in the near future to again honor us with your company. Gentlemen, you are welcome." (Applause).

Response to Addresses of Welcome.

Dr. S. D. Swope, Deming: "Madam President and Ladies and Gentlemen of the New Mexico Medical Society, and our honored guests: It gives me great pleasure to respond to the welcome addresses to which you have just listened. In the language of the sweet singer of old

Scotland, I can merely say, " 'Twas here the first days of my boyhood were spent." Twenty years ago, I came first to Las Vegas as its guest and a member of the New Mexico Medical Society. There were less than a baker's dozen of devoted souls who gathered here for the like purpose. They took us over to the police court and kept us there during the entire meeting. There was not any other place to meet and it proved a very successful one. 'Twas there and then, looking backward now for two whole decades, that the child was born under the New Mexico Medical Society. I had the honor of being one of the accoucheurs, and we delivered from the thralldom of oblivion the reports and the New Mexico Medical Journal was born. I have had several welcomes since to this genial and congenial community. It has been a great pleasure to come among you and I have needed no other words of welcome. Some of you have grown gray and others bald since that first time, but your welcomes are just as delightful and just as acceptable. Some of the older men who have welcomed me in times past have dropped out; their memories are very fresh and green when we think of Atkins and others.

"Now all the way from the sand dunes and windmills of the Mexico plains of the far southwest, traveling through these beautiful canyons and evergreen-covered hills, I have wondered what I would say. 'There is a destiny which shapes our ends, rough-hew them how we may.' After getting in, I thought that I would pay my respects to my dear

old friend, Shaw, who for twenty summers and winters has helped to fight these battles. He was not in. There were fourteen babies, thirteen women and a few others sitting around his office waiting for him, and I tapped on his door and sat down. I opened a copy of the Ladies' Home Journal which he keeps on the table there and settled down to wait for him and the first thing I ran across was a folded paper in it. I am as curious as my friend, Dr. Frisbie, here on my right; and I opened it. Evidently, it was not intended to be read at this meeting; evidently it was an emanation of the noted Doctor's brain which had been laid away for some future reading possibly in the small hours of the night. When he had nothing else to do, he had written this out in this Ladies' Home Journal, from which he was trying to select some jokes to perpetuate on other people, and forgot it:

I had a dream, a very plain dream,
After a dinner of kidney stew;
Dreamed I was at a meeting of meds,
Where none of them ever lost their heads,
Which I do not expect to come true.

Las Vegas was glad to have the boys,
And the local society grew;
The doctors were glad to pay for the eats,
And in the whole bunch were no dead beats;
Which I do not expect to come true.

Dreamed that McBride had lost his form,
Had run the society askew;
He had run the Journal deep in debt,
Lost all the funds on a nervy bet;
Which I do not expect to come true.

Dreamed that Joyner had grown a beard,
That Yater had sprung something new;
That our friend Bradley had lost his chip,

That slim Peters had let something slip;
Which I do not expect to come true.

That Cornish read a poem on love,
That made the society quite blue;
That "Pop" Bullock had grown a new lung,
And that poor old Swope had lost his tongue;
Which I do not expect to come true.

Dreamed that Duncan, Tipton and Wroth,
Had found a way their youth to renew;
That Bushnell had ceased to hold the fort,
That Pierce had lost the look of a sport;
Which I do not expect to come true.

That the shadows of time come at last,
And the doctors all slept but a few;
That I had everything all my way,
And that my hair had ceased to grow gray;
Which I do not expect to come true.

That all Las Vegas joined in a shout,
"Hooray, with the meeting we are through;
Hooray, they are gone the old moss backs,
Hooray, they are gone the new comer quacks;
And this part I expect to come true.

Acting President Frisbie announced the Section on Practice of Medicine convened and asked the Chairman, Dr. T. C. Sexton, Las Cruces, to take the chair.

Address of the Chairman: "Arterial Hypertension."

The privilege of the floor was extended to the fraternal delegates and visitors.

Dr. C. E. Lukens, Albuquerque, read a paper on "Enuresis, a Habit or a Disease." Discussed by Drs. E. B. Shaw, East Las Vegas; J. S. Cipes, Albuquerque; F. E. Tull, Albuquerque; Dr. Lukens closing.

Dr. W. W. Waite, El Paso, Texas, read a paper on "A Gold-Headed Cane (Historical)," discussed by Dr. C. E. Edson, Denver, Colorado; Dr. Waite closing.

Dr. C. E. Edson, Denver, Colo-

rado, read a paper on "Cardiac Irregularity, Its Significance and Management." Discussion by Drs. W. R. Tipton, East Las Vegas; S. D. Swope, Deming; B. L. Sulzbacher, Kansas City, Missouri; Dr. Edson closing.

Dr. F. H. Crail, East Las Vegas, read a paper on "Artificial Feeding of Infants," which was discussed by Drs. H. A. Ingalls, Roswell; Joseph S. Cipes, Albuquerque; C. E. Lukens, Albuquerque; W. W. Waite, El Paso, Texas; Dr. Crail closing.

Dr. J. R. Van Atta, Albuquerque, read a paper on "The Wasserman and Luetin Reactions." Discussed by Dr. S. D. Swope, Deming; Dr. W. W. Waite, El Paso, Texas; Dr. Hugh Crouse, El Paso, Texas; and Dr. Van Atta in closing.

EVENING SESSION, SEPT. 6, 1915.

Called to order in the rooms of the Commercial Club, at 8:00 p. m., President Joyner presiding.

President Joyner spoke as follows:

"Fellow Members of the New Mexico Medical Society: I owe you an apology for not being present this morning, but my intentions were good. I left home, as I thought, with twelve or fourteen hours to spare, in company with some of my fellow members of the County Society, and finally arrived here this afternoon in rather dilapidated condition, as you can see. However, it gives me great pleasure to greet you at this time, on this thirty-fourth meeting of the New Mexico Medical Society, and it is my hope and desire that it will be one of the most profitable meetings that we

have ever held. I will now present my delayed presidential address."

President's Address:

MEDICAL ORGANIZATION AND PUBLIC HEALTH.

(Published in September).

Dr. E. C. Prentiss, El Paso, Texas, read a paper on "A Suggestion with Regard to the Medical Treatment of Cancer." This was discussed by B. L. Sulzbacher, Kansas City, Missouri; Evelyn Frisbie, Albuquerque; C. E. Edson, Denver, Colorado; J. W. Kinsinger, Roswell; O. S. Fowler, Denver, Colorado; Crum Epler, Pueblo, Colorado; Hugh Crouse, El Paso, Texas; E. Payne Palmer, Phoenix, Arizona; S. D. Swope, Deming; Dr. Prentiss, closing.

Dr. H. A. Ingalls, Roswell, read a paper on "Remote Death Following Electric Shock." Discussed by Drs. Wm. P. Mills, East Las Vegas; J. W. Kinsinger, Roswell; Joseph S. Cipes, Albuquerque; Dr. Ingalls closing.

MORNING SESSION, SEPT. 7, 1915.

Called to order at 9:00 a. m., in the rooms of the Commercial Club. Dr. H. M. Smith, East Las Vegas, Chairman Section on Surgery, presiding.

Dr. Smith read the Chairman's Address, "A Protest Against Ill-Advised Surgery."

Dr. William Senger, Pueblo, Colorado, read a paper on "Gastric Symptoms in Relation to Abdominal Disease." Discussed by Drs. A. W. Morton, San Francisco, California; E. C. Prentiss, El Paso, Texas; Hugh Crouse, El Paso, Texas; E. Payne Palmer, Phoenix, Arizona;

Crum Epler, Pueblo, Colorado; O. S. Fowler, Denver, Colorado; John R. Espey, Trinidad, Colorado; William Howe, East Las Vegas; Dr. Senger, closing.

Dr. B. L. Sulzbacher, Kansas City, Missouri, read a paper on "The Technique of Perineal Repair with Report of a Case." Discussion by Drs. William Howe, East Las Vegas; O. S. Fowler, Denver, Colorado; E. Payne Palmer, Phoenix, Arizona; Dr. Pulley, Watrous; Dr. Sulzbacher, in closing.

Dr. A. W. Morton, San Francisco, California, read a paper on "Bone Transplants in Fractures." Discussion postponed until afternoon session.

Dr. Crum Epler, Pueblo, Colorado, Secretary Colorado State Medical Society, addressed the session as follows:

"Mr. President and Gentlemen, as Secretary of and on behalf of the Colorado State Medical Society, I desire to extend to you all a cordial invitation to attend our annual meeting, which will be held in the City of Denver the 5th, 6th and 7th, or Tuesday, Wednesday and Thursday first of the month in October. We will be very glad to see any and all of you there; you will be taken care of in the usual cordial and agreeable entertainment which Denver people give." (Applause).

AFTERNOON SESSION, SEPT. 7, 1915.

Called to order at 2:00 p. m., at the Commercial Club, Secretary McBride presiding.

The paper read by Dr. A. W. Morton, of San Francisco, at the morning session was discussed by Drs. S.

D. Swope, Deming; Hugh Crouse, El Paso, Texas; E. Payne Palmer, Phoenix, Arizona; O. S. Fowler, Denver, Colorado; C. E. Edson, Denver, Colorado; and Dr. Morton.

Dr. O. S. Fowler, Denver, Colorado, read a paper on "Local Anesthesia in Major Surgery, with Clinical Demonstration." Discussed by Dr. B. L. Sulzbacher, Kansas City, Missouri; Leonard Freeman, Denver, Colorado; A. W. Morton, San Francisco, California; S. D. Swope, Deming; C. E. Edson, Denver, Colorado; H. M. Smith, East Las Vegas; Hugh Crouse, El Paso, Texas; W. J. Kinsinger, Roswell; E. Payne Palmer, Phoenix, Arizona; John R. Espey, Trinidad, Colorado; Dr. Fowler, closing.

Dr. John R. Espey, Trinidad, Colorado, read a paper on "Some Suggestions on Modern Treatment of Fractures." Discussed by Drs. H. A. Miller, Clovis; S. D. Swope, Deming; Leonard Freeman, Denver, Colorado; A. W. Morton, San Francisco, California; E. B. Shaw, East Las Vegas, Dr. Espey closing.

EVENING SESSION, SEPT. 7, 1915.

Called to order at 8:00 p. m., at the Commercial Club, Secretary McBride, presiding.

Dr. E. Payne Palmer, Phoenix, Arizona, read on a paper on "Effect of Trauma on Development of Cranial Bones, with a Report of a Case." Discussed by Drs. Leonard Freeman, Denver, Colorado; E. F. Frisbie, Albuquerque; Dr. Palmer closing.

Dr. Hugh Crouse read a paper on

"The Omentum," with lantern slide demonstration. Discussed by Drs. E. Payne Palmer, Phoenix, Arizona; E. C. Prentiss, El Paso, Texas; Hugh Crouse, El Paso, Texas, in closing.

MORNING SESSION, SEPT. 8, 1915.

The joint meeting of the New Mexico Medical Society, Section on Tuberculosis, and the New Mexico Society for the Study and Prevention of Tuberculosis, was called to order at 9:00 a. m. in the rooms of the Commercial Club, President A. G. Shortle, Albuquerque, presiding.

Dr. Shortle delivered the President's annual address, "The Treatment of Hemorrhage." Discussed by Drs. Leonard Freeman, Denver, Colorado; W. E. Kaser, East Las Vegas; C. E. Edson, Denver, Colorado; J. S. Cipes, Albuquerque; A. G. Shortle, closing.

Dr. Ralph C. Matson, Portland, Oregon, read a paper on "Types of Pulmonary Tuberculosis with the Exclusive Occurrence of Much Granules in the Sputum." Discussed by Drs. L. S. Peters, Albuquerque; W. T. Murphy, Albuquerque; C. E. Edson, Denver, Colorado; Dr. Miller, East Las Vegas; J. S. Cipes, Albuquerque; Ralph C. Matson, closing.

Dr. W. T. Murphy, Albuquerque, read a paper on "A Plea for a More Extensive Use of Tuberculin in the Treatment of Tuberculosis." Discussed by Dr. Charles E. Giese, Colorado Springs, Colorado.

Dr. Charles E. Giese, Colorado Springs, Colorado, read a paper on

"Diagnostic Difficulties in Tuberculosis." Discussed by Drs. Joseph S. Cipes, Albuquerque; and C. E. Edson, Denver, Colorado.

The paper of Dr. C. E. Edson, Denver, Colorado, on "Some Difficulties and Errors in the Diagnosis of Tuberculosis," and the paper of Dr. L. S. Peters, Albuquerque, on "What New Mexico Needs Most in Tuberculosis Legislation," were read by title.

The meeting was then turned over to the General Society, President Joyner taking the chair.

The Secretary made the following report:

"The Secretary's report will be very brief. I am not even going to read the resolutions we passed. We passed resolutions of thanks in the Council and the House of Delegates to the Commercial Club and the Las Vegas Medical Society and to all the good people who have been so kind to us and entertained us and kept us in shape to go home safely this afternoon. We will publish these and ask you to take the will for the deed at the present time. We passed resolutions of regrets and condolence on the deaths of several of our members; these also will be published. We violated all precedent and elected a woman as president, Dr. Evelyn Frisbie, of Albuquerque. Dr. Losey, of Las Vegas First Vice-President, Dr. J. W. Kinsinger, of Roswell, is Second Vice-President, and Dr. A. H. DeLong, of Gallup, Third Vice-President. Dr. Tull is Treasurer. As a member of the Council, Dr. H. A. Miller, Clovis. Dr. Swope has been elected Delegate to the A. M.

A. for two years, giving him an opportunity to carry on the good work that he has done for the last two years; he has promised to make no speeches. The Committee on Public Policy and Legislation has been done away with and instead there has been created a Committee on Public Health and Education, composed of five members, Drs. Joyner, Kaser, Wroth, Shuler and Swope.

AFTERNOON SESSION, 2:30 SATURDAY.

Dr. Joyner appointed Dr. S. D. Swope, Deming, to conduct the newly elected President to the chair. Dr. Swope spoke as follows:

"Members of the New Mexico Medical Society who are left, allow me to introduce to you so far as I have been able to learn the first lady president that was ever elected to preside over a state society. You heard last night at the banquet of the fact that the first Caucasian physicians who ever came to New Mexico were the greatest quacks that had ever been here. Possibly that was so. We know many things of Coronado. We do know that he found the most unique government in the northern part of New Mexico in the Hopi Indian reservation that has ever been discovered, the original woman's suffrage arrangement, where the mother was the head of the household and when she wished to divorce her husband she put the saddle or bridle on the outside of the door and the gentleman went back to his mother without question. We have found a lady to serve us as our executive officer for the coming year, out of all her sisters in this great United States

first to be elected to this important office. You are all gallant gentlemen. I cannot ask you to treat my friend, Dr. Evelyn Frisbie, kindly, you could not do otherwise; and I want to say to you that if you feel like doing otherwise, you will find her thoroughly able to take care of herself under all circumstances." (Applause).

Secretary McBride: "I move that the Thirty-Fourth Annual Session of the New Mexico Medical Society do now stand adjourned sine die. I have promised Dr. Frisbie that she need not make a speech."

President Frisbie was called on to speak, and replied as follows: ,

"I am so cordially invited by Dr. McBride not to make a speech, and having had such faith in his assurance, I prepared no *impræmptu* speech. I simply want to thank the Society for the high office that is conferred not only on me but upon women, and I think it is for that reason that I do not beg to be excused. I also wish to pledge my hearty support to the policy set forth in the President's Address, and will do all in my power to further it."

Adjourned sine die.



Original Articles

A PROTEST AGAINST ILL-ADVISED SURGERY.

H. M. SMITH, M. D.
East Las Vegas, New Mexico.

Chairman's Address, Section on Surgery, Thirty-Fourth Annual Meeting of the New Mexico Medical Society, East Las Vegas, September 6-8th inclusive.

It is not my purpose to indulge in malicious muckraking, for it is a well known fact that the modern physician is better equipped by training than the old time doctor, and not only saves more lives but shortens the convalescence in the average surgical case. However, I wish to call attention to, and enter a protest against, what seems to me ill-advised and unnecessary surgery by the general practitioner.

There are many operators, but few surgeons, and modern aseptic precautions make it possible for the most inexperienced tyro to invade important structures without actual loss of life; but what of the ultimate results and the morbidity that too frequently follow? An operative recovery does not always signify a restoration to health.

As a short cut to fame and riches surgery seems attractive and many physicians, seeing their competitors successfully remove tonsils, adenoids, invade the abdomen and treat fractures by the open method, assay this perilous role with little thought of their limitations. A well known surgeon says: "Anaesthesia and

asepsis have done a lot of harm. They have enabled any fool to become a surgeon." Another writer makes this statement: "While the evolution of medical practice has been in the direction of greater simplicity, less dependence upon drugs, and less meddlesome interference with nature, the resort to surgery has appealed more strongly than ever to the progressive, reforming spirit of our generation, and active interference has been invoked for the relief of all sorts of disorders both functional and organic, in many cases with but little justification, and it has been freely practiced by men whose training and opportunities for the observation and interpretation of living pathology have been far from adequate."

I have no words of criticism of the general practitioner who attempts to do his own surgery, providing he has a reasonable preparation, realizes his limitations and will give his case careful and conscientious study before advising operation. It is the impulsive, avaricious and snap diagnostician I condemn. As a doctor once said to me: "Strike while the iron is hot for if we put this operation off until tomorrow the patient may change his mind." He was referring to a case just seen and the only symptom present was pain and soreness in the right iliac fossa. A normal appendix was removed that night through a small incision, and the patient made the usual recovery in these cases, but the pain and soreness returned a little later.

Contrary to the generally accepted view of the laity, the surgeon is

nota surgeon because he is capable of doing extensive and spectacular operations, but is a surgeon, in the true sence of the word, because he knows when not to operate as well as when to operate. With the profession also this view of the surgeon is all too prevalent. But the time is not far distant, if it has not already arrived, for the public to demand conservatism instead of radicalism, and there are indications that it is already abreast of the profession in this regard.

There is no denying the fact that much of the surgery being done is extremely ill-advised and miserably executed. It was to raise the standard of surgical practice that the American College of Surgery was established, recognizing the fact, no doubt, that the time was ripe to take some steps to safeguard the science of surgery and the public from the practice of untrained and incompetent men.

Few towns of any considerable size are without a small hospital, and much good work is being done. For the man in the small place, equipped for surgical work, I have only words of praise, but as said before, it is the man eager to do surgery for surgery's sake or for his own sake (and there are many such) who advises and operates without careful consideration, that I am criticizing. It is this class that in advising an operation too often make light of any surgical procedure. On this subject the late Dr. Maurice Richardson said: "All surgical operations, no matter how trivial, are attended by possible dif-

ficulties and dangers which should always be taken justly into account in discussing their pros and cons."

Formerly it was the ovaries that were attacked with results so generally disappointing, that the operation has fallen into disrepute, and now even the most radical hesitate to advise their removal without first exhausting every other means of relief. Now it is the appendix that is the victim of the operator's zeal, and it is sacrificed upon the slightest provocation.

A few instances from my own observation will, I think, justify the title of this paper.

An artificial menopause in a patient suffering from painful menstruation with nervous manifestations each month, was strongly advised and arrangements fully completed for an ovariectomy, when a change of climate brought about complete relief. In the casual examination of a woman suffering from some slight ailment, tenderness in the right iliac space was elicited. Without further investigation a diagnosis of chronic appendicitis was made and an immediate operation advised.

A small child taken suddenly sick with a digestive disorder was found to have some right iliac tenderness. An immediate operation was done and a fecal impaction discovered. A normal appendix was removed and later the fecal accumulation, and today the parents still sing the praises the doctor for his judgment in interfering before it was too late.

Many abdomens are opened for a supposed diseased appendix and

no exploration made for further trouble, even though the appendix has every appearance of being normal. A blind faith in one's diagnostic acumen due to ignorance or inexperience!

Too many such cases are not only not relieved but are subjected to the dangers from adhesions that follow in the wake of many abdominal operations.

Many other cases could be cited to show the abuse of this popular operation.

Much has been written of late on the operation of gastro-enterostomy as a means of relieving all sorts of intractable dyspepsias. The technic being more difficult, it is less often resorted to than some of the simpler procedures, but is still too frequently done with disappointing results. Not long ago a case of obscure epigastric pain with progressive loss in weight and irregular attacks of indigestion, was selected for this operation. An active course of antisiphilitic treatment brought about complete and permanent relief.

The gastric crises of tabes not uncommonly leads to surgical interference, and much too often is the abdomen opened and an innocent appendix removed for symptoms produced by a loose kidney.

A sarcoma of the bone is diagnosed and a amputation advised when a positive Wassermann, followed by a vigorous treatment cures the tumor.

Gall bladders are opened, explored and drained, when no stones are found and no infection exists,

and with no permanent relief. And not long since a thyroidectomy was advised in a case of simple goiter without marked symptoms and with no attempt at relief medically: In this instance I am sure the roctor had never done the operation, even on a dog, and I very much doubt if he had even ever assisted in such a case. He had, however, recently seen the operation performed with apparent ease by some master surgeon.

Surgical intervention in properly selected cases of mastoiditis is a most necessary and in the majority of cases a satisfactory operation. It is, however, fraught with some danger and unexpected and severe complications and sequellae are not uncommon. Yet this important structure is invaded for mere pain and in the absence of any history or evidence of ear trouble. Its important relations and its nearness to vital tissues should make it forbidden ground to the bungler, careless or inexperienced.

Nasal spurs, hypertrophied turbinates and other nasal conditions are attacked without mercy and often irreparable damage done. Headaches of obscure origin, digestive disturbances, eye strain and in one case the vomiting of pregnancy, justified the advice to remove a spur or straighten a deflected septum.

Adenectomy is recommended in cases where the nasa-pharangeal space is clear, and tonsillotomy is insisted upon without sufficient indication. Some men do not hesitate to expose a young child to the dangers and discomforts of a general

anaesthetic for a simple removal of the adenoids, and even adults are etherized for extirpation of the tonsils. Evidently these men do not know the advantages of local anaesthesia or have failed to master its technic, for complete nuncleation of the tonsils in the average manageable case is a most satisfactory operation. Few surgical procedures give more satisfaction, both to patient and operator, than the removal of tonsils and adenoids, but that these cases are too often improperly selected, admits, I think, of no doubt.

Some of the men who specialize are not free from censure in this respect and a referred case is too often handled in accordance with the advice previously given by the family physician regardless of the best interests of the patient. Manifestly there is a woeful lack of moral courage in some of these individuals, or that form a graft known as fee splitting is indulged in. Much as I dislike to believe it, I cannot but think that a division of the fee is too often the controlling factor in some of these cases.

And so I might go on to a tiresome extent. The cases cited are a few personally observed. Multiply them by the larger number seen by the busy practitioner in the large cities, and all must agree that it is time to call a halt.

But strange as it may seem these men seem to get away with it. Is it any wonder that the conscientious man who tries to do good work sometimes wonders if after all it is worth while?

Sins of omission are even more disastrous than the sins of commission, and the lack of judgment and proper study that will lead a man to advise operation unnecessarily is just as apt to cause him to overlook conditions in which the safety of the patient depends upon immediate interference. Late intervention in acute surgical lesions, such as in the late hours of a general peritonitis following a perforated appendix, a gastric or duodenal ulcer, or in the toxic stage of intestinal obstruction, is ill-advised surgery. Cases of advanced malignancy, whether in the breast, uterus or other organs are unsuitable for operation. Even in the hands of the most expert these cases give little hope. What then can the occasional operator expect to gain except his fee? He not only assumes an immediate risk of loss of life, but very materially increases the patient's discomfort. Strangulated hernia, impermeable urethral stricture, ruptured ectopic pregnancy and a host of other conditions demanding hasty interference, are too often delayed and late surgery fails to bring permanent relief. Precancerous lesions of the skin and mucous membranes are not the least of the sins of omission that eventually lead to ill-advised surgery.

I shall not weary you with further illustrations, but do suggest, that in the every-day practice of the average physician, surgical interference be undertaken only after a most careful and thorough study of the condition for which relief is sought.

While the practice of surgery forms but a small part of the gen-

eral practitioner's work still for some reason, hard to understand, the surgical sections of medical conventions demands the greater portion of his time, and the glamor of the surgical clinic is irresistible. His desire for knowledge would be commendable were it not for the fact that he neglects the more important subjects of pediatrics, obstetrics and general medicine upon which he largely depends for a livelihood.

Surgery by the general practitioner is firmly established, but again I urge temper it with conservatism and a well grounded realization of one's limitations and do not overlook the fact that general and preventive medicine, while less spectacular, offer an unlimited field for the careful, painstaking student.

ENZYMES.

E. S. BULLOCK, M. D.
Physician-in-Chief, New Mexico
Cottage Sanatorium.
Silver City, N. M.

Read before the Grant County Medical Society, August 27, 1915.

In a world of wonderful, even marvelous things, among which man's intellect, in spite of constantly increasing knowledge, often stands bewildered if not appalled, the whole subject of enzymes opens up a vista as delightful in its possibilities as perplexing in practice. Students now identify amboceptors as enzymes, and we all know that the various biologic tests are dependent upon them. And, as well, through the epoch-making work of

Vaughan, which we might say in passing, the Germans with their accustomed intellectual honesty have appropriated as their own, we also know that practically all the defense mechanisms for bacteriologic infections are a matter of parenteral digestion through enzymes.

In my student days bacteriologic chemistry was an unexplored field, and as for enzyme chemistry not even a dream of it had occurred to anyone. Realizing as we must that advances in therapeutics must come to a great extent through increasing knowledge of biologic chemistry, and particularly that of enzymes, this paper is offered to those who, like myself, have had little opportunity to study this subject as its importance demands.

In the chemical laboratory we truly beat the devil around a bush in order to accomplish a rearrangement in molecules and atoms, and yet nature with the greatest apparent ease makes sugars and starches from inorganic substances. In the madder plant she makes alizarine without any fuss, boilings, or stewings, while to manufacture it artificially requires a highly equipped laboratory, and a complicated technique, to say nothing of a chemist of a very great knowledge indeed. Any old slimy pond can change cellulose into gas, but no chemist on earth has been able to do it. Such wonderful molecular transformations are the result of catalysis. The example which is usually cited is that of the alcohol and spongy platinum cigar-lighter. The latter substance is the catalyst, and

in the presence of alcohol vapor causes combustion at a much lower temperature than is usually required; but how? One who can give the answer will spring fully into fame. Concentrated sulphuric acid cannot be made except in the presence of pulverized platinum, and yet the platinum is the same after as before; it weighs no more and no less.

When we pass from the realm of the inorganic to the organic, we cease to employ the word catalyst and instead say enzyme, but we mean the same thing. Hydrolysis by means of an acid or alkali is one of the most simple of catalytic phenomena, and by this means we may break cane into grape sugar in the laboratory. It is, however, important to recollect at this point that hydrolysis, like fermentation, never proceeds to the point where the change is complete, but is always arrested at a certain stage. For instance, ethyl acetate when brought into contact with a warmed acid solution may be broken into alcohol and acetic acid, but all the ethyl acetate will not be changed; at a definite point the process stops. This matter of hydrolysis should be fixed in the mind; for many fermentative changes are hydrolytic in character. I am now in a position to state a law: By means of enzymes substances may be broken down and built up. We may say, then, that the process is reversible, but it must be remembered, the action can only proceed in both directions under special conditions. These conditions the chemist may often alter and vary within quite wide limits, but in

nature things cannot be boiled nor distilled, and we find that these wonderful transformations can all occur in that tiny laboratory, the living cell. Recall for the moment the basis of life the "cell." It has a membrane with minute holes in it; it is filled with protoplasm, that wondrous substance, always in motion; in a state of unstable equilibrium, and in which chemical change proceeds without end until death occurs. It was from the study of protoplasm that Herbert Spencer derived his definition of life, "the constant adaptation of internal relations to external relations." This generalization does not take us far, and to the inquiring mind is about as satisfactory as the ancient's idea of the world; that Atlas supported it and he stood on a turtle, but no one knew what held the turtle. No one yet can define life in anything but a half-truth, but by the light of biologic chemistry we are well on the way to an understanding of life.

Let us return to our little laboratory, the living cell. If work is to go on in this laboratory it must have supplies as well as a method of egress for its products. Remember the little holes in the membrane; these are the doors by which substances get in and out of the cell, but these doors are very small indeed and therefore no ordinary solid substances can pass. We may readily understand that such a thing as salt dissolved in water will have no difficulty in passing in and out. These are crystalloids, but the celloid cannot pass. Chemists know that there is no essential difference between

these two classes of matter. In one, the crystalloid, the particles of matter are so very fine, molecular, in fact, that they find the openings into the cell relatively large and pass without difficulty; in the colloid, however, the particles, though still very small are too big to get through. If the ultramicroscope is employed in the study of colloids the particles may be demonstrated. Therefore, colloids, like crystalloids, are really solutions, and this is completely manifested when we discover that colloids may be precipitated, the addition of an acid being usually all that is required for this purpose. A colloid which can be precipitated, and then returned to solution is called a reversible colloid, and *per contra*, one that cannot, is called an irreversible colloid. When enzymes are studied it is found that most of them are reversible colloids; they will be thrown down by alcohol, and after removal of the alcohol may be redissolved.

Colloids, and therefore enzymes, have another marked peculiarity; they are mighty poor conductors of electricity; in fact, when exposed to the electric current they have a tendency to move at once either to one pole or the other, and therefore some are electro-negative and some are electro-positive, and each will precipitate the other. In our biologic tests this fact is often made use of; as for instance when a toxin is coagulated by a precipitin. At this point we must study another phenomenon, and that is osmotic pressure. First it must be recalled that students of physics are agreed

that matter in very dilute solution exists in a state of dissociation; that is, the ions obey the laws of gases, and as we know, matter in this state has a tendency to diffuse indefinitely. Now, if we take a vessel with semi-permeable walls and place in it a solution of salt, very dilute of course, and place this vessel in pure water there is a tendency for the water to enter the vessel. This creates a definite degree of pressure and is known as osmotic pressure. I think I have made it plain that the reason why crystalloids will pass and re-pass the walls of a cell depends upon this matter of osmotic pressure. When two substances exercise the same osmotic pressure they are termed isotonic.

We are now nearly ready to return to our cellular laboratory. We know that here crystalloids come in through the doors, and are built up into albumin; the albumin is torn to pieces and passes out again as crystalloids. The cell cannot heat a test tube over a Bunsen flame, neither can it indulge in fractional distillation, so this catabolic and metabolic chemistry must be performed under the simplest possible conditions, and to dispense with as much heat as possible, and as well, as little acid or alkali as possible, implies that the catalyst or enzyme must be present.

One thing is certain: To do all these things the cell must be alive, and the greatest philosopher, living or dead has not yet been able to explain life in terms of chemistry. We may be permitted at this stage of knowledge to apprehend the problem in this way. Up on the electric

light pole there is a transformer. It receives a current of twenty-five hundred volts, and steps it down to one hundred and ten. Now the cell receives energy, vital, let us name it, though we know not what we mean, and changes it into chemical energy with the production of heat. All over the body we see cells set to perform definite tasks, and where one works in an acid medium, another requires an alkaline environment. Each is absolutely intransegant in devotion to a particular line of work, and all are completely irenic in their interrelations, except the cells of malignancy; the Germans of the cellular hosts. In the bacterium we have an example of a single cell organism, the simplest of all, which, however, unlike the cells of a body community, leads a very selfish existence, and performs a certain chemical problem with often terrible efficiency. Whenever apparently we cannot explain fermentation by means of an enzyme, as in the interposition of a living cell in the acetic acid fermentation of alcohol, continued study has shown that the living cell before thought essential to the process simply carried an enzyme which when extracted from the cell could cause the chemical change alone and by itself. Such a ferment, extracted from a cell is called a zymase. When yeast causes the production of alcohol from sugar it is not the living yeast cell that causes this, but the zymase which the cell produced.

By easy stages we have arrived at the now justifiable conclusion that all life is essentially a fermentation,

but with this striking difference: from fermentations in general. In the test tube the surest way to arrest fermentation is by continued fermentation, as in the production of alcohol from sugar; when the alcohol has accumulated to a certain point the process comes to an end, before the sugar is all changed. In life this is not true; for the products of fermentation are removed with relative efficiency; not entirely removed, for if that were true, we would live forever. It is my own particular theory advanced by no one else that I know of, that old age is the result of gradual accumulation of fermentation products.

Before proceeding with my task I may say that it is hardly necessary before an audience of medical men to mention any of the fundamental conceptions of chemistry, for the purpose of which the atom is conceived as the smallest possible division of matter, even though late studies seem to indicate that the atom may be still further divided into electrons. Let me recall to your minds that the atom of each and every element has a certain and always constant weight. This is, of course, the basis of chemical symbolization. We must also remember one or two other terms and their meaning. A substance at the moment of its liberation from combination is defined as matter in the nascent state. When oxygen is added to something else the process is termed oxidation, and when taken from something else as reduction. There is a set of enzymes called oxidases which depend for their activ-

ity upon oxygen in the nascent state. Organic chemistry is, as we all know, the chemistry of the carbon compounds, though it should be remembered there is no true distinction between organic and inorganic chemistry. The difference we were taught in my youth faded out when urea was manufactured in a laboratory.

If a certain weight of carbon is burned in oxygen, and the amount of carbon dioxide resulting is weighed, and if the weight of a given amount of carbon dioxide is known, as compared with an equal amount of oxygen, it may be easily demonstrated that twelve parts of carbon unite with thirty-two parts of oxygen to form a gas whose molecular weight would be 44, and consequently its formula must be CO_2 . Such a fundamental truth as this is only mentioned because organic formulae are determined in this way, and if this simple matter is not appreciated the remainder of this paper will not be understood, as is also true of what follows.

If a substance containing carbon and hydrogen is burnt the carbon is liberated as CO_2 and the hydrogen as water. Both of these can be weighed, and one is now in a position to calculate the percentage of carbon in the original substance. This is combustion analysis and plays an important part in organic chemistry. The following example will show how it is calculated: .2gm. of a substance yielded on analysis .290 grm. of CO_2 and .120 of H_2O . In every 44 parts of CO_2 there are

12 parts of C. Therefore in .290 grm of CO_2 there will be:

$$\frac{.29 \times 12}{44} = 0.079 \text{ Parts of C.}$$

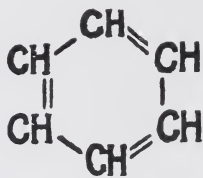
In this way it is easy to arrive at the percentage of each element entering into a combination, by simply multiplying the .079 parts of C by 100 and dividing by the weight of the original substance which was .2 grm, giving 39.5 per cent of carbon. From the data now at hand we can create the empirical formula, which is, of course, the ratio of the number of atoms to each other. Now if a substance is selected which contains 3.3 parts of carbon; 6.5 parts of hydrogen, and 3.4 parts of oxygen the lowest ratio of these figures is one part of carbon, two parts of hydrogen, and one part of oxygen. Then it can only be concluded that the empirical formula would be written CH_2O . The molecular formula can be deducted from the empirical formula if we know the molecular weight of a compound, by comparing its weight with that of an equal volume of hydrogen. Thus: assuming that the vapor density of a substance is 44 and that the weight of a molecule of hydrogen is two, the molecular weight of the substance will be 44 times 2 or 88. The molecular formula, therefore will be $\text{C}_2\text{H}_4\text{O}_2$; for the atoms must be in the same ratio as in the empirical formula, and the sum of their atomic weights must equal 88.

In the analysis of compounds which cannot be vaporized without decomposition molecular weights cannot be determined by measurements of their vapor density as compared with hydrogen, but as we

now know substances in very dilute solutions act as though they were in the gaseous state, and a specific effect is produced on the melting and boiling point of the solvent, which is proportional to the molecular weight of the dissolved substance, and by employing data obtained in this way molecular structure may be determined.

After we have arrived at a knowledge of the number of atoms of each element present in the molecule of a compound, we still know nothing whatever of how the atoms are arranged in the molecule. To demonstrate this arrangement has been the wonderful accomplishment of modern chemistry. The atom replacing power of elements is known, as valency; that is, an atom has one or more arms by means of which it can fasten itself to other elements. Hydrogen is monovalent, oxygen is divalent, nitrogen trivalent, and carbon is tetravalent. When an atom does not grab all the other atoms that it can the condition of the atom is described as unsaturated, as in carbon mon-oxide. Carbon is a wonderful element and soon we will appreciate why it occupies such a commanding position in the organic world. It is not only tetravalent, but it can combine with itself. We can have veritable chains of carbon. Each carbon atom has four arms, bonds properly called, with which it can fasten to either other carbon atoms or to different atoms. Now if two carbon atoms join each will have left three unsaturated arms, and each of these arms can grab some other atom. If we use hydrogen every time we add a carbon

atom we can stick on two more atoms of hydrogen, and in this way build up what is called a homologous series, and of this the paraffin hydrocarbons are a good example, for instance Methane, CH_4 , Ethane, C_2H_6 , Propane, C_3H_8 , and Butane, C_4H_{10} . If in a chain like this two adjacent carbon bonds are left unsaturated, then the olefine hydrocarbons may be obtained. Next come the ring hydrocarbons of which benzene is a typical example. This as you will remember is represented in this way:



This is known as a constitutional formula. Such are not figments of the imagination, for as soon as a constitutional formula is worked out for an organic compound it is, as a rule, but a short time before the compound itself is created in the laboratory. It stands to reason that before the substance can be created it must first be obtained in a pure state for analysis, and this is done by crystallization and distillation, and fractional crystallization and fractional distillation. We know that a crystalline substance is pure when it has a constant melting point, and the same is true of boiling point in distillation.

We understand the mental picture that has been formed of benzene, the carbon-hydrogen ring, but if one stops to think, the ring can be

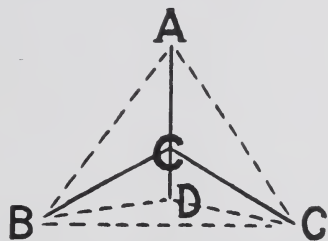
formed of CH atoms, why cannot they arrange themselves in some other way and form something else. They can, and this property is called isomerism. A compound with the empirical formula C_6H_6 , and the constitutional formula $\text{CH}\equiv\text{C}-\text{CH}_2-\text{CH}_2-\text{C}\equiv\text{CH}$ is dipropynyl.

We are now ready to approach one of the most wonderful conceptions of chemistry, and that is the actual visualization of the structure of a molecule. No one has ever seen one, nor will anyone ever see one, and yet we have reason to think that we know what one would look like. The idea of the structure and appearance of a molecule came about through the study of the properties of compounds and elements in their effects upon polarized light. Before this audience it is not necessary to go into details of the polarimeter and its use, but only necessary to recall that those substances whose solutions twist the plane of polarization to the right are known as dextro-rotatory, and those in which it is twisted to the left are known as laevo-rotatory. We may have two substances whose chemical characteristics are identical, but in which the effects upon polarized light are very different. This property is known as space-isomerism. Lactic acid in combination with strychnine is such a substance; that is, if it is permitted to crystallize out the first portion effects the plane of polarization differently than the last portion to crystallize. Racemic and tartaric acid effects the polarized light and racemic acid does not. Why this is so is certainly very interesting, and it was Pasteur who started,

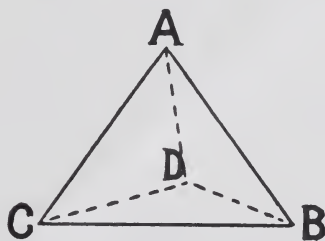
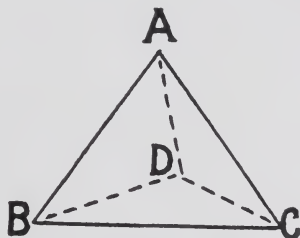
the solution of the mystery. Now sodium ammonium racemate is a substance which has no effect upon polarized light, but by careful crystallization Pasteur discovered that it was possible to select crystals of this substance which differed from each other in the same way that an object differs from its reflection in a mirror; that is, he saw certain faces on one lot of crystals on the right side, and in another set these faces were on the left. These crystals were derived from both dextro- and laevo-tartaric acid, and therefore when they were crystallized together to form a racemate, why optical inactivity was bound to result. Pasteur with that wonderful scientific imagination which was his, was quick to recognize that the cause of this difference must lie deep, in fact that it was due to differences in molecular constitution.

It was subsequently discovered by other investigators that every optically active substance contained within its molecule a carbon atom to which four different groups were attached. This is called an asymmetric carbon atom. Now, if we are to understand why this grouping gives rise to actual physical asymmetry the groups must be considered as occurring in three dimensions. Every study seems to prove, in fact does prove, that the four combining arms of a carbon atom are strictly equivalent. We can visualize the conception by placing the carbon element in the center of a tetrahed-

ron. Its four arms now reach out in the direction of the four angles; thus:



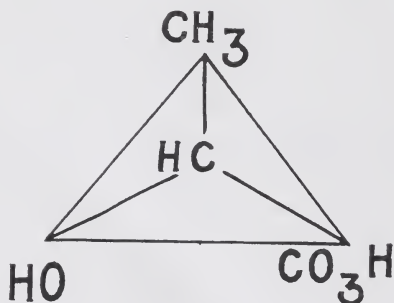
If we now attach four different groups to each angle of the tetrahedron, we can see how easy it is to produce both a right-handed and a left-handed arrangement; thus:



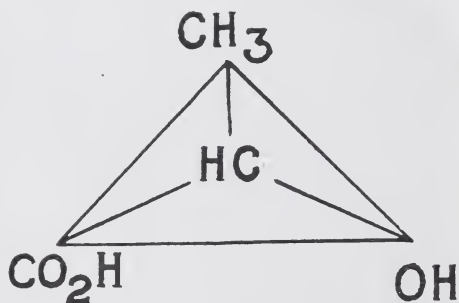
We simply change the positions of B and C. These arrangements can be symmetrically superposed, and then are known as enantiomorphous, and we see that following the superposing there is no essential difference between them. Such a molecular difference as this can only occur when all four replacing groups are different, that is, a, b, c, and d; which means that there is an asymmetric carbon atom in the molecule.

Now, don't you see? we are in a

position to appreciate why there can be two forms of tartaric acid even though their constitutional formula is exactly the same. We now understand how it is possible to get a dextro-, a laevo, and as well, an inactive tartaric acid. Now a chemist cannot very well carry around with him a tetrahedron, but he can imagine himself looking at one from the top down, and he proceeds to write what is known as a stereo-formula, which expresses the space arrangement of the atoms in a molecule. If we now draw a tetrahedral representation of a dextro-lactic acid it will be like this:



If we wish to represent a laevo lactic acid we would do it thus:



As said before the tetrahedron is an inconvenient way of writing a formula, so we look down on it from

above and this is the way we can represent it:

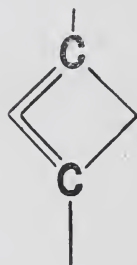
dextro lactic acid



laevo lactic acid

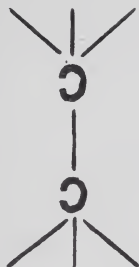


If we concede that this spatial arrangement of atoms is a picture of what occurs in Nature then other interesting conclusions follow. Remember that the carbon atom is always in the center of a tetrahedral space. With this in mind consider the space formula of acetylene:



Anyone can see that with four carbon arms reaching for affinities on each atom of carbon that when two atoms of carbon are connected they must be in an unnatural relation, and they don't wish to remain that way any longer than can be avoided; therefore the explosive character of acetylene. One now recognizes that the structure of an atom has much

to do with its stability. If further proof is desired observe the way in which a more stable gas like ethane is composed:



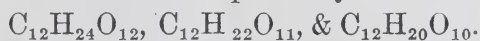
This is known as a saturated substance, and it has no tendency to fly to pieces.

As time goes on this idea of space isomerism is gradually being extended throughout the field of chemistry, and there seems little doubt that Pasteur was right when he concluded that the molecular structure is intimately connected with crystal-line form, and in fact the crystal is but a reflection of the molecule.

All the foregoing chemical ideas are essential to the study of enzymes; for it has been found that there is a wonderful relation between the action of enzymes, and the space or stereo-chemical combinations presented by the substances upon which they act.

Next in line for consideration come the sugars, for they are the foundation of some of the most important fermentations. Chemically a sugar is a carbohydrate. A carbohydrate is a substance composed of carbon, hydrogen, and oxygen, the last two being in the proportions to form water. The simplest carbohydrate that can be conceived is formaldehyde, with the empiric form-

ula CH_2O . Chemists are now of the opinion that all the carbohydrates that make up the immense family of that name originated from the simple substance, formaldehyde. Of the natural carbohydrates the three most important are the mono-saccharoses, the di-saccharoses, and the polysaccharoses, and their empiric formulae are respectively:



From this we can see how closely these different groups are related. If we take a number of molecules of formaldehyde they can be built up into the mono-saccharoses. Now, if we take a little of the water from this we obtain a dis-saccharose, and by taking a little more we have a poly-saccharose. Grape sugar and fruit sugar are monosaccharoses, cane and beet sugar are di-saccharoses, and starch and cellulose are poly-saccharoses. At this point it is really fitting that we pay some attention to the chemistry of the sugars, but it is impracticable to do so within the limits of a paper such as this.

Every one knows what starch is, and how essential it is to life. It can polarize light, and consists of small granules which vary greatly in size in different plants, those from the potato being about the largest. Microscopically the starch granules consist of layers one over the other, about a nucleus. There are several isomeric compounds in starch, the two principal ones being amyllum and farinose, and the latter is not readily attacked by acids or enzymes. If starch is boiled with a dilute acid the solution will gradu-

ally become clear, and a test will show the presence of sugar. Sugar can also be produced if malt extract is added to the starch. In the latter instance the change is brought about by an enzyme known as amylase. You will recall that malt is barley which has been permitted to germinate up to a certain point, and the process stopped by the application of heat, but not beyond 180 degrees F. The original barley is hard with no special taste or smell, but the malted grain is soft, has a not unpleasant odor and a sweet taste. At the base of a barley grain lies the germ. In malt the germ has enlarged until it extends two-thirds the length of the grain. The main point, of course, is that malt contains a large amount of amylase. When extract of malt and cold starch solution are brought together under suitable conditions, the following changes occur: First, the solution gradually clears, then it will be found that a blue color does not follow adding a drop of dilute iodine to the solution. Then, by the use of Fehling solution an increasing amount of precipitation will be observed. In other words the action of the malt extract or amylase upon the starch solution is progressive. First we have the formation of dextrans, and finally of the sugar known as maltose.

If malt extract be added to alcohol a white precipitate occurs, which we can demonstrate, carries the enzyme which brings about these changes. This enzyme is known both as amylase and diastase. In its study we are simply using a type of enzymes in general. There are sev-

eral distinctive tests for albumin of any source, of which the most notable are Millon's and the biuret reactions, and as amylase or any enzyme will respond to these tests we are justified in concluding that they are complex nitrogenous substances and first cousins to albumin. No one has yet succeeded in obtaining an absolutely pure enzyme. The processes necessary to their extraction are themselves destructive of the enzyme, and so impressive is this fact that it has been suggested that ferment action is simply a property of matter such as radio-activity. The quantitative changes brought about by amylase can be studied by observing the effects on specific gravity, optical activity, and cupric oxide reducing power. As a result of study in this way it has been concluded that the starch molecule is broken down by a series of hydrations and following decompositions, and at each splitting maltose is formed.

Enzymes are destroyed by heat; they have an optimum temperature of reaction; they are greatly effected by alterations in the medium in which they are placed or rather in which they act, and continuous activity does not wear them out. In other words, they resemble living organisms, and though the analogy is plain they differ in other respects; for instance, some enzymes will pass through porcelain filters which will stop most organisms, and some are unaffected by antiseptics which do effect most organisms. They differ again in this way: The larger the amount of enzyme used the greater the reaction that fol-

lows, and so regular is this that it follows a law, the law of proportionality, which living organisms do not regularly follow. There are too, a number of micro-organisms which secrete amylase, notably the cholera bacillus, and the bacillus of anthrax. Some moulds will also produce amylase, particularly the *Aspergillus niger*. The secretion of amylase or any enzyme is exactly analogous to the production of a toxin by a pathologic organism. The chemical problems involved in the study of toxins and enzymes are the same.

Organisms grown on different media and varying environments have their pathologic effects altered, as we all know. Now in the same way or in an analogous way enzymes alter their functions according to the media in which they find themselves. For instance the *Aspergillus niger* can not only break up starch but it can invert cane sugar and split fats. No pathologic organism can show such wide limits of function, but there is no doubt that they will vary their effects according to their environment.

Invertase, which is prepared from beer yeast is the enzyme which inverts cane sugar. To prepare it it is not necessary to break up the yeast cell, but it may be obtained by diffusion, showing that it can pass through the cell wall. It is therefore called an extracellular enzyme. Maltase is an enzyme which also occurs in yeast and which converts maltose into dextrose, and it is of very particular interest because it was one of the first by which it became possible to demonstrate that

enzyme actions are potentially reversible; that is they can synthesize as well as break down. Thus: if maltase is added to a very concentrated solution of dextrose, which is the sugar it forms, a disaccharide is formed. It was at first concluded that this is a reconversion of dextrose into maltose, but then it was discovered that the disaccharide formed was isomeric with maltose. From this it was easy to conclude that in dilute solutions there was a breaking down of larger into smaller molecules and in concentrated solutions there was a building up of simpler into more complex molecules.

The discovery of these reversible or synthetic reactions or enzyme actions marked not only a great epoch in chemistry but as well in biology; for we can now see the method by which in Nature any old substance is first torn to pieces and then by the actions of these wonderful entities, enzymes, again built up into acceptable pabulum.

It seems to me that I have covered about as much of this complicated subject as should be attempted in one evening, and I am prepared to stop here, only hoping that I have not worn out my audience, but if it is considered that we can with profit give up more time to this subject I can at another date take up the action of enzymes on albumins. This, of course, brings us close to the life processes in which we should all be interested. In the preparation of this paper I owe acknowledgments of obligation to several authors, but particularly Gilbert Fowler of England.

THE NEPHRITIS OF INFECTION.

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Albuquerque, N. M.

Read before the Bernalillo County Medical Society, September 15th, 1915.

When we consider the physiology of the kidney it is rather more to be surprised that the kidney is not affected more than it is than that the kidney affections following the acute infectious diseases are as frequent as they are, for the kidney eliminates not only the toxins, but also the micro-organisms themselves, and sometimes, as in typhoid fever, in great abundance.

With reference to the effect of the fever accompanying infectious diseases: The consensus of opinion is that it plays a very small part in the production of renal changes, because inorganic poisons have been found to be capable of exciting lesions similar to those of infectious diseases without causing any fever. Therefore, it is reasonable to believe that the infectious toxins play the principal part in the causation of the nephritis. Nephritis has also been produced experimentally by injecting toxins, such as the diphtheria toxins, into animals. It will be remembered that the blood first passes almost in its entirety through the glomeruli, where it loses water and some soluble substances. Through this loss of water the toxins become concentrated and act with great severity upon the tubules. The glomerulus has the structure of a true gland, the tubule being its excretory duct, but this tubule is also

provided with glandular properties, and adds its portion of secretion to that of the glomerulus. The infectious diseases are the cause of a very large percentage of all the cases of acute nephritis. Many cases that on preliminary examination seem to have been caused by non-microbic agencies often on closer analysis are discovered to have been preceded by definite symptoms of infections, very mild, and often unheeded by the patient or his family, but yet the underlying cause of a later nephritis. I recall several cases in our epidemic of scarlatina a few years ago in which the first time a physician was called, diagnosing a very severe nephritis, and in one case which terminated fatally, even on close questioning neither the patient nor family were able to recall the child having been sick, but were able to recall the peeling of the skin a few days before the development of the nephritis.

Comparatively insignificant sore throat, mild rheumatism, a trifling la grippe, or an acute cold may any of them be the advance agent of a very severe nephritis. Scarlet fever leads the list among the infections as the one most commonly attended or followed by nephritis. There is a great variation among statistics as to the relative frequency with which scarlatina is followed by nephritis. Some authors place it as high as 31 per cent, while Goodhall in 5,443 cases found nephritis in 8.4 per cent. This variation is perhaps explained by the fact that some observers put down all cases of temporary albuminuria as nephri-

tis. Others listing only the later albuminuria with oedema, and all the characteristics of a true nephritis.

During an epidemic of scarlet fever it is no uncommon thing to find a patient whose scarlatina seems mildest developing a most severe nephritis. Why this is true is not known. The theory has been advanced that the irritation to the skin on account of the whole surface of the skin being involved has thrown much added work upon the kidneys and thereby causes the nephritis. However, this hardly seems reasonable for the nephritis usually occurs three or four weeks after the fever has passed, and in smallpox, with a much larger percentage of the skin involved, nephritis is rather uncommon. The exposure to colds during convalescence is given as a cause, as well as errors in diet, constipation and other alimentary disturbances. While all these may assist and add their mite to the cause of nephritis, the primary cause must be regarded as the toxin in the blood. Diphtheria is also frequently followed by nephritis, but not nearly so frequently as scarlatina, nor is the nephritis of diphtheria as fatal as that of scarlatina. The other common infectious diseases of childhood—measles, chickenpox, whooping cough, and mumps—are occasionally followed by nephritis, but its occurrence is comparatively rare. Nephritis may also follow the epidemic cerebro spinal meningitis, typhoid fever, pneumonia, smallpox, malaria, rheumatic fever, chorea, ton-

silitis, erysipelas, dysentery, septicaemia, pyaemia, cholera and yellow fever, or any other infection.

The type of nephritis usually following infections is more nearly classified as an acute diffuse nephritis for it involves both the parenchyma and the inter-stitial tissues.

TREATMENT.

First is preventative, and just how much may be accomplished in preventing nephritis in a given case is impossible to say. However, the proper treatment of any acute infection is the best possible preventative of nephritis. An early and efficient dose of anti-toxine in diphtheria, and quinine in malaria will lessen the danger of nephritis. The free use of water as a diluent and eliminant, and attention to cathartics may be the means of sparing the kidneys undue irritation, and in this way may avoid nephritis. Warm tepid baths, sponge baths or packs when combined with the free drinking of water, are all beneficial. Drugs are sometimes used so freely as remedial agents as to induce a nephritis. Alcohol is sometimes given too freely. Great caution should be used in giving salicylic acid, carbolic acid, turpentine, bichlorid, and chlorid of potash. When large doses of any of these drugs, that are known to be irritating to the kidneys, are being given careful examination of the urine should be made daily, and the presence of albumin, blood or casts should not be interpreted as caused by the fever, and the dose of the drugs increased.

but any irritating drug should be at once discontinued, and serious nephritis may be prevented.

We have no specific for acute nephritis. The general principal of treatment should be removal of the cause, if possible. Rest the kidney by throwing its work upon the skin and bowels, and treat the symptoms and complications as they may arise. The patient should be kept in bed, warmly covered, should sleep between flannel blankets, and should wear flannel or outing flannel night clothes. Fresh air for the sick room is essential, but drafts should be avoided. Rest in bed should be insisted upon until the disease has disappeared. An important question is that of diet. The food should be of such a nature as not to throw too great a burden on the kidneys. The food that most nearly meets all requirements is milk, and this may be given during the entire course of the disease. In many of the cases in the early stages of the disease in which the attack is very sudden and severe, accompanied by a great deal of nausea and vomiting, it is perhaps better to give the stomach absolute rest for a day or two, as often milk or even water only excites attacks of retching and vomiting. It is sometimes difficult to make the parents see this, for they feel that the child is sick and should be given at once medicine to cure the disease and food to keep up his strength. The amount of water to be given has been discussed considerably, especially since Von Noorden has laid emphasis on the fact that the inflamed kidney is to have rest and if

one of the functions is the elimination of water the amount of water taken in should be limited, for at times the kidney refuses to be washed out, and will not even eliminate water. Von Noorden holds that to such a kidney water is as much an irritant as is urea. Whether this be true or not,—the kidney as persistently refuses to excrete one as the other. They, therefore advise restriction of fluids, which is rational enough for when the blood pressure is high and oedema is occurring, it is worse than useless to add to both. A thirsty patient craving water may take one or two quarts a day, provided the stomach will tolerate it. The attempt to force a patient in this early stage to drink a gallon of water a day, besides much milk, is unwise. Not only will the kidney be unable to handle this, but will also put an unnecessary strain upon the heart.

Fruits are not injurious. Meat and broth should be forbidden at first. Later when the craving for meat becomes great this may be satisfied by allowing a little meat once in a while. Green vegetables may be taken after the acute stage is passed. Butter-milk is a great help, and is much to be preferred over the sweet milk, and can be used first, last and all the time.

Elimination should be kept up in every way. All avenues should be kept open. Where oedema is marked, sweating should be resorted to. Sweating by external means is preferable to that brought on by the use of drugs, for if it causes exhaustion it can be stopped

immediately. The oedema may demand prompt attention. If sweating fails to reduce it, puncture of the legs and tapping of the abdomen or pleura should be resorted to. The oedema of the larynx may necessitate tracheotomy.

Drugs in acute nephritis are of very little or no benefit in limiting the disease. Pain over the kidneys can usually be relieved by hot applications. After the acute stage is passed great benefit may be derived by the use of some of the bitter tonics, such as *nux vomica*. If oedema is marked iron should be used. Basham's mixture is an excellent preparation for this type of a case. In case cardiac stimulation is necessary strychnine or caffeine prove very beneficial, and in toning up the heart they will raise the blood pressure and increase the amount of urine.

PROPAGANDA FOR REFORM.

Filudine.—This is a French proprietary sold in this country by Geo. J. Wallau, Inc., New York. It is offered as a remedy for "biliary insufficiency," "hepatic insufficiency," "intestinal dyspepsia," "all affections of the liver (diabetes, cirrhoses, cancer, etc)" "malaria," "obesity" and "tuberculosis." The statements in regard to the composition of Filudine are unsatisfactory and even contradictory. The Council on Pharmacy and Chemistry reports that Filudine is a mixture of semi-secret composition; that the therapeutic claims are manifestly unwarranted. The name is not indicative of the composition, whatever that may be, and no rational excuse is offered for the combination of liver and spleen extracts (with or without bile extracts) with "thio-methyl arsinate" or "thio-cinnamate" of caffeine. (Jour. A. M. A., Sept. 18, 1915, p. 1045).

Globeol.—Globeol is sold by Geo. J. Wallau, Inc., along with Urodonal, Jubol and Filudine. The Council on Pharmacy and Chemistry reports that when the description offered by

Wallau is divested of obscuring verbiage, Globeol appears to be evaporated horse blood mixed with small quantities of colloid (dialyzed?) iron and manganese and a "dash" of quassia. The Council declared Globeol ineligible for New and Nonofficial Remedies because its composition is semisecret; because unwarranted therapeutic claims are made for it and because the asserted combination is irrational. (Jour. A. M. A., Sept. 19, 1915, p. 1046).

Verlie Gatlin Wrinkle Remover.—The Verlie Gatlin Beauty and Wrinkle Treatment was a Denver mail order concern which promised to remove facial blemishes of all sorts and in other ways to make its customers (dupes) beautiful. A post office fraud order has been issued against the promoters of this medical fake. (Jour. A. M. A., Sept. 18, 1915, p. 1047).

The Horowitz-Beebe Cancer Cure.—Dr. J. W. Vaughan, Detroit, Mich., protests against the unauthorized use of his name in connection with the Horowitz-Beebe cancer cure, Autolysin. A private letter written one week after beginning trials with the cure Dr. Beveridge was made to do service as a testimonial in a lay magazine. (Jour. A. M. A., Sept. 18, 1915, p. 1048).

Strychnine not a Cardiac Tonic.—As a result of investigations carried out in the Massachusetts General Hospital at Boston, Dr. L. H. Newburgh concludes that there is no pharmacologic or clinical evidence which justifies the use of strychnine in the treatment of acute or chronic heart failure. (Jour. A. M. A., Sept. 19, 1915, p. 1032).

Grant's Epilepsy Cure.—Fred E. Grant, Kansas City, Mo., sells an "epilepsy cure" on the mail order plan. Analysis in the A. M. A. Chemical Laboratory demonstrated it to be a bromide mixture containing as its essential ingredients about 15.8 gm. potassium bromid and 0.9 gm. sodium bromid per 100 c. c. (Jour. A. M. A., Sept. 4, 1915, p. 894).

Hydragogin.—The Council on Pharmacy and Chemistry reports that Hydragogin (C. Bischoff and Co.), advertised as a "most wonderful diuretic and cardiac tonic," is a shotgun mixture of semi-secret composition, marketed under a therapeutically suggestive name and advertised by means of unwarranted therapeutic claims. Hydragogin is said to be a preparation of digitalis, strophanthus, squill and a saponin. The report ex-

plains the objection to the administration of digitalis and strophanthus in fixed proportion because of the varying rates of absorption and excretion of those two drugs. If further cautions that since digitalis bodies must often be given to the point of beginning toxic action in order to obtain the full therapeutic effect, it is obvious that the administration of a mixture of digitalis, strophanthus, saponins and squill is especially liable to induce serious toxic effects which cannot be distinguished from the symptoms of the disease. (Jour. A. M. A., Sept. 4, 1915, p. 894).

Williams' Syrup of Malt.—The Council on Pharmacy and Chemistry reports that Williams' Syrup of Malt is ineligible for New and Nonofficial Remedies because it is an official article marketed under an unofficial title; because unwarranted therapeutic claims are made for it, and because the claims made are apt to lead the public to depend on it as a curative agent in serious diseases. (Jour. A. M. A., Sept. 4, 1915, p. 895).

Micajah's Uterine Wafers and Piso's Tablets.—The A. M. A. Chemical Laboratory has determined that Micajah's Uterine Wafers and Piso's Tablets are practically identical—a mixture of dried alum, borax and boric acid. While Micajah's Uterine Wafers are advertised to the medical profession, Piso's Tablets are a "patent medicine." The claims made to the public for Piso's Tablets are silly and mischievous—but no more so than those made to the medical profession for Micajah's Uterine Wafers. (Jour. A. M. A., Sept. 25 1915, p. 1128).

Episan (Brobor).—The Council on Pharmacy and Chemistry finds Episan, recently renamed Brobor, ineligible for New and Nonofficial Remedies. Neither name indicates the active ingredients—potassium bromid, 44.3 per cent., borax 441.2 per cent., zinc oxid, 3.68 per cent. and amyl valerate 4 per cent. A physician prescribing the preparation under either name would not realize that he was administering borax, and therefore would not take the precaution to watch the intestines and the kidneys. Also, he would not realize that the treatment was essentially a bromid treatment. There is no evidence to show that borax is harmless, as claimed, or that either borax or zinc oxid is a nerve sedative. (Jour. A. M. A., Sept. 25, 1915, p. 1130).

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Cutter Laboratory: Anti-Pneumococcal Serum, syringes 10 Cc.; Diphtheria Antitoxin Globulin, syringes 2,000, 3,000, 4,000, 5,000 and 10,000 units each; Normal Serum (from the horse), syringes 10 Cc.; Tetanus Antitoxin, syringes 10 Cc.

Hoffman-LaRoche Chemical Works: Imido Roche, Ampules Imido Roche.

H. K. Mulford Co.: Mercurialized Serum, Mulford, Mercurialized Serum Nos. 1, 2, 3, 4, 5, 6.

Schieffelin and Co.: Radio-Rem. Outfit No. 4.

Standard Oil Co., of California: Calol Liquid Petrolatum, Heavy.

Morgenstern and Co.: The Council has recognized Morgenstern and Co. as selling agent for Dolomol and the Dolomol preparations in New and Nonofficial Remedies. The Council is assured that these preparations will be marketed in accordance with its rules.

White Chemical Co.: The Council has recognized the White Chemical Company as selling agent for Apinol. The Council is assured that this preparation will be marketed in accordance with its rules.

Pantopon (Pantopium hydrochloricum).—A mixture of the hydrochlorides of the alkaloids of opium, containing 50 per cent. of anhydrous morphine hydrochlorids. It produces essentially the effects of opium, but, being devoid of opium extractives, may be used for hypodermic administration. It is probably absorbed more promptly and is free from the nauseant odor and taste of ordinary opium preparations. Pantopon (pantopium hydrochloricum) is also supplied as Pantopon (pantopium hydrochloricum) tablets 0.01 Gm., Pantopon (pantopium hydrochloricum) hypodermic tablets 0.02 Gm., and Pantopon (pantopium hydrochloricum) ampules 0.02 Gm. The Hoffman-LaRoche Chemical Works, New York City. (Jour. A. M. A., Sept. 4, 1915, p. 887).

Larosan, Roche.—Calcium caseinate, con-

taining calcium equivalent to 2.5 per cent. calcium oxide. In the treatment of diarrheas of infants a useful food is that made from the curd of milk and diluted buttermilk. The preparation of such a mixture of proper composition being difficult to prepare in a private home, Larosan, Roche is offered as a substitute. The Hoffman-LaRoche Chemical Works, New York City. (Jour. A. M. A., Sept. 4, 1915, p. 877).

Betanaphthol Benzoate-Merck.—A non-proprietary preparation of betanaphthol benzoate (see New and Nonofficial Remedies, 1915, p. 210). Merck and Co., New York. (Jour. A. M. A., Sept. 4, 1915, p. 877).

Desiccated Pineal Gland, Armour.—The pineal gland of normal cattle, freed from connective and other tissues, dried and powdered. There is some evidence that there is a relation between the pineal gland and some processes of development and growth. The therapeutic use of the gland is in the experimental stage. Pineal gland, Armour is also supplied as Pineal Gland Tablets, Armour, 1-20 gr. Armour and Company, Chicago. (Jour. A. M. A., Sept. 25, 1915, p. 1111).

Scopolamine Stable, Roche.—An aqueous solution of pure scopolamine hydrobromide protected against decomposition by the addition of 10 per cent. of mannite. It has the properties of scopolamine hydrobromide, U. S. P. It is supplied in ampules, each containing 1.2 Cc. (L Cc. contains 0.0003 Gm. scopolamine hydrobromide). The Hoffman-LaRoche Chemical Works, New York. (Jour. A. M. A., Sept. 25, 1915, p. 1111).

Coagulen, Ciba.—An extract said to be prepared from blood-platelets and to contain thromboplastic substance mixed with lactose. 1 Gm. representing 20 Gm. dried blood. It is said to act as a remostatic and to be useful in the treatment of local and certain internal hemorrhages. Solutions of Coagulen, Ciba are used locally, intramuscularly and intravenously, A. Klipstein and Co., New York. (Jour. A. M. A., Sept. 25, 1915, p. 1111).

Calol Liquid Petrolatum, Heavy.—A non-proprietary brand of liquid petrolatum, U. S. P., said to be derived from California petroleum and to consist essentially of hydrocarbons of the naphthene series. It is colorless, non-fluorescent and practically odorless and

tasteless. Its specific gravity is 0.886 to 0.892 at 15 C. Standard Oil Company of California. San Francisco, Cal. (Jour. A. M. A., Sept. 25, 1915, p. 1111).

Tetanus Antitoxin for Human Use.—Marketed in syringes containing 1,500, 3,000 and 5,000 units each. Cutter Laboratory, Berkeley, California.

Diphtheria Antitoxin, Globulin.—Marketed in syringes containing 2,000, 3,000, 4,000, 5,000 and 10,000 units each. Cutter Laboratory, Berkeley, Cal.

Anti-Pneumococcic Serum.—Marketed in syringes containing 10 Cc. Cutter Laboratory, Berkeley, Cal.

Normal Serum (from the Horse).—Marketed in syringes containing 10 Cc. Cutter Laboratory, Berkeley, Cal. (Jour. A. M. A., Sept. 25, 1915, p. 1111).

Book Review

SYFILIS AS A MODERN PROBLEM.

By William Allen Pusey, M. D.

*Professor of Dermatology in the University of Illinois. Price, cloth, 50 cents; paper, 25 cents. Pp. 129. Chicago: American Medical Association, 1915.

The following review appeared in The Journal of the American Medical Association for Sept. 18, p. 1051.

This book is a monograph reprinted from the Commemoration Volume issued by the American Medical Association "as a tribute to the medical sciences which made possible the building of the Panama Canal and the Panama Pacific Exposition."

The publication of this discussion of the present status of one of the so-called three great plagues—syphilis, tuberculosis and cancer—is opportune. Two decades ago tuberculosis, the fellow of syphilis in this triad of diseases, was as little understood by the everyday man as syphilis is today. In the comparatively brief interval of twenty years, a campaign of education and organized propaganda for the combating of consumption has

transformed the situation. The forces of intelligent public opinion and of public and private funds, and the power of disinterested men and women have brought into being a great system of physical and educational aids for the tuberculous which have begun to realize their full possibilities. Against cancer our ignorance limits our capacity for effective control. Yet even in the case of cancer there are large endowments for study, and a consistent campaign for the better education of the public is under way.

Against syphilis, on the other hand, little or no social headway has been made. The confounding of the sanitary aspects of a communicable disease with questions of morals and the effects of a traditional prudery have stifled advance in the social control of this disease. The United States is conspicuous in this backwardness. In strange contrast with this situation, medical knowledge of syphilis has advanced in the last decade with unparalleled rapidity. At the present time it is safe to rank the strategic position in regard to its sanitary control as equal to that for the control of malaria and yellow fever. In one direction, medicine holds syphilis in the hollow of its hand; two generations of intelligent attack could see it reduced to the status of a sporadic infection. In the other direction, the unwillingness to act of the public, on whom help depends, has prevented all organized effort for the control of this disease. Syphilis is a sanitary problem, that it must and will be solved by society sooner or later is inevitable. Its importance cannot be exaggerated! It breeds misery and perpetuates it. It is a source of public cost, a drain on human efficiency, and a stumbling block in the progress of mortality and decency whose all-pervading influence is appreciated only by those who work with it all the time. Into this situation, Dr. Pusey's book projects itself with a peculiar force. It considers syphilis from the standpoint of its effect on society; not as

a disease which medicine is called on to treat. The whole subject is broadly sketched; its course and its pathology are given in sufficient detail to allow the reader to get a mental picture of the disease. Preceding this there are three chapters on the history of syphilis, the most complete statement of this subject in English, which furnishes a unique historical perspective. The rest of the book concerns the study of the general problems of syphilis; the prognosis of syphilis; syphilis and marriage; the etiology of syphilis, and the prophylaxis of syphilis. In these chapters, such subjects as the relative frequency of tabes and paresis, the effect of syphilis on length of life, the time when the syphilitic may marry, the prevalence of syphilis, its comparative frequency in men and women, the question as to whether or not syphilis is on the increase, and syphilis and prostitution are considered. The whole book is a foundation for the last chapter—the prophylaxis of syphilis. Here the author shows how syphilology has finally arrived at a point where the prevention of syphilis is practiceable by sanitary measures. He points out what these measures are, and so furnishes the strongest argument for the inauguration of an organized sanitary attack on this disease.

The work is eminently sane and without sensationalism or exaggeration. It does not affront with needless horrors, nor is it written in the spellbinding style of campaign literature. The book is fitted to serve as a guide to a sustained and effective interest in the problem on the part of intelligent readers. It is not a medical textbook, nor is it a primer. It is intended for the intelligent lay reader, but it may be read with equal profit by the intelligent physician. It considers syphilis from a detached point of view, from which point the physician ordinarily does not think of it. It is filled with facts which are carried through to legitimate conclusions, and from which are deduced practical suggestions, and

is worthy of the thoughtful consideration of intelligent men and women.

Operative Gynecology, by Harry Sturgeon Crossen, M. D., F. F. C. S. Published by C. V. Mosby Company, St. Louis, Missouri. This volume is devoted exclusively to operative treatment. Dr. Crossen has endeavored to make this treatise as practical as possible. The technique of the various operations has been presented, as well as the difficulties one is liable to encounter, as well as those methods useful in obviating these difficulties. In the various diseases the indications for operation, and the selection of the exact form of operative procedure best suited for the particular case has been his aim, as well as his accomplishment. He has conformed this volume to the new stage of development in operative gynecology; that of the adaptation of operative methods to the exact pathological conditions present in the individual patient, in contradistinction to detailing the technique of all the operations that have been made for these conditions during the developmental stage. Selective treatment is the keynote of this work. In the work are found seven hundred and seventy illustrations. A few of these have been transferred from his text book on Diseases of Women. The composition of the volume is rather unique. The chapters as a rule contain the historic evolution of the procedure under consideration, followed by the technique of the various operations adapted to the subject under consideration, and arranged in the style of a textbook on operative surgery. All the operations are profusely and beautifully illustrated. A perusal of the work shows its up-to-date-ness, as it contains the more recent advances. It is a most commendable work, and a most complete one. It concludes with a chapter upon the medicolegal points in gynecologic

surgery. It is destined to be as popular as its antecedent—the text-book upon Diseases of Women, and can be commended to the use of the profession without the least hesitation.

FORD CAR OWNERS.—Betz Tire Savers and Flexible Riders save more than their price on one set of tires and make your car as easy riding as a Pearce-Arrow or a Packard. Write today. Address Betz Tire Saver, Hammond, Indiana.

CONCENTRATED ANTIDIPHTHERIC SERUM.

Recognizing the inconvenience and other objectional features attending the subcutaneous administration of bulky doses of diphtheria antitoxin, some of the leading manufacturers years ago sought to isolate the antitoxin from the serum, in an endeavor to obtain a product that would represent as great a number of antitoxic units as possible in small compass. Experiments disclosed the fact that the antitoxic element in the serum is a globulin, or has such properties that it precipitates with the globulins. Various methods, all of them based upon the principle of repeated precipitation, have been employed to eliminate the non-essential portions of the serum, leaving only the globulins or antitoxin. The method employed in the laboratories of Parke, Davis & Co., results in a globulin that is free from many of the albuminous substances that cause the undesirable by-effects which sometimes attend the administration of antitoxin. These proteins which are removed in the process of concentration, are largely responsible for the toxic symptoms which serums may produce in susceptible patients. With the concentrated serum (globulin) it is found that rashes and other undesirable symptoms occur less fre-

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quently than with untreated serum, and when they do appear they are of a milder type.

In the production of Parke, Davis & Co.'s diphtheria antitoxin, care is exercised that the horses selected for the purpose shall be absolutely free from disease. In pursuance of this purpose the animals are kept for several days under close observation in a detention stable. During this time thorough physical examinations are made by competent veterinary surgeons. Not only must the animals be healthy and vigorous when inoculated—they must be kept so; and they are fed, stalled, groomed and exercised with this end always in view.

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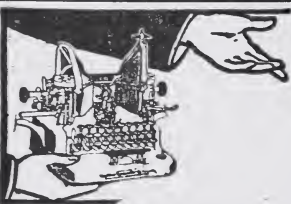
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E . D . I . T . O . R . I . A . L

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FAVOR THOSE WHO FAVOR US.

ALLEN TREATMENT OF DIABETES.

"The fundamental significance of Allen's treatment, involving a suitable initial fast, lies in the belief that if glucosuria and hyperglycemia are prevented, the damaged internal function of the pancreas, on which the utilization of sugar ultimately depends, is protected, and rest becomes possible. Structural losses cannot be repaired; but it is reasonable to assume that if there is a "functional" element in the etiology of human diabetes, a complete rest of the weakened function may both permit and facilitate recovery.

"The policy of Allen's method involves 'prompt and lasting freedom from glucosuria and acidosis' not only in mild and incipient cases but also in all diabetic patients, even the severest. This represents a far more radical treatment than any hitherto proposed. The avoidance of acidosis means the elimination of the necessity of administration of objectional alkalies often given in

very large doses. The danger of coma is correspondingly reduced. The subsequent carefully selected diet is intended to maintain the advantage of freedom from intoxication at any cost. Therefore, instead of attempting to increase the weight of the somewhat depleted patient and maintain it at the highest possible level, as has so often been attempted, the aim is to keep the weight low in the belief that the reduction is beneficial to the diabetic. Any gain which brings back glucosuria or ketonuria must be checked. From this point of view, it becomes necessary on the return to restricted diet to test the patient's tolerance not only to carbohydrate but equally well to fat and protein, and keep within it. During the fasting periods, alcohol may be given until the ketonuria disappears. This is not absolutely essential, though alcohol appears to be valuable and does not produce glucosuria.

"Although it is perhaps too early to grow unduly enthusiastic with respect to the success of the treatment by initial fasting," says *The Journal of the American Medical Association*, "enough favorable reports have been recorded to designate the outlook as one of promise. Dangerously weak and emaciated patients have borne the fasting with

apparent benefit, 'giving the impression that they have been suffering more from intoxication than from lack of nutrition.' Many of the dangers which suggested themselves have not arisen or have been successfully managed by those who have tested the method. After all, under any dietary plan the most important feature is to educate the patient so that he can carry out a dietary scheme with intelligence. Until the physician himself knows foods as well as he knows drugs, it is useless to expect dependable results from those in his care. Too often he is hopelessly bewildered when there is need of suggesting a 'diet list.' Green corn and celery, bananas and cucumbers are all in the same vegetable category in his mind. A radical treatment which removes polydipsia, secures relief from polyphagia and makes the patient feel better is always welcomed by the individual; but the treatment cannot be expected to succeed unless it can be intelligently prescribed.

"Aside from the advantages of comfort and simplicity, the ultimate prognosis of diabetes on the basis of the new treatment must depend on the question whether diabetes is an inherently progressive disease or 'the simple weakness of a metabolic function.' Rest and restoration may succeed in one case; repair may fail in the other. Joslin has come to feel that coma no longer represents the culmination of diabetes, but that it is an avoidable accident. Whatever the ultimate outcome, Allen's treatment is believed, in his own words, to remove the glucosuria and acido-

sis more quickly and surely than has been the practice heretofore, and to enable patients to do better when these symptoms are removed than when they are allowed to continue. Any plan which holds out prospects like these for severe diabetes deserves to be studied carefully, to say the least."

SHALL WE TOE IN OR TOE OUT?

Like the child's toy house built with blocks, the foot stands when balance is maintained and becomes weak and wobbly when a single block is moved sufficiently to disturb its balance. In correct position, the foot carries the weight of the body with a wide margin of strength to spare. Change the posture and the demand upon this reserve strength becomes often too great to be permanently borne. The foot is then under a strain, it tires, becomes painful and finally by yielding of the ligaments, the shape of the foot is altered, its efficiency is impaired and our whole physical being feels the loss of a stable foundation. Body posture directly influences the maintenance of foot comfort, and foot posture has a direct bearing upon correct attitude of the body. The old method of toeing out, as taught to the recruits of the army in civil war times, was really a position of weakness. To utilize its power to best advantage, the walking position of the foot should be with little or no outward pointing of the toes. In standing slight turning out of the toes is permissible. To add to foot comfort, shoes should not cramp the

ball of the foot and the heels should be low and broad, to give stability without calling upon the muscles to maintain balance. Mechanically the foot is a wonderful creation, but like all delicate mechanisms it must be kept in good condition and used intelligently or its efficiency disappears.

THE DEATH OF A GREAT NATURALIST.

Henri Fabre has just died at his home in France. Only toward the close of his long, laborious life had the careless world begun to realize that in this unpretentious son of peasants, waging a heartbreaking struggle against grinding poverty and humiliating neglect, it had been ignoring a unique genius. For this long failure to obtain fitting recognition there were many reasons. Fabre possessed none of the arts of the self-advertiser. Entomology, when he embraced it as a career, was a neglected science, and the phase of it to which he intuitively turned, the study of instinct, was especially neglected. Then, too, though versed in several sciences, Fabre was impatient of booklore in his own field and refused to bow to the theories of the day, preferring to interrogate Nature alone. Finally, it may be that even his delightful prose, with flashes of fancy and quaint humor, inspired in the Gradgrinds of science a certain distrust. This distrust, if it existed, Fabre was at no pains to allay, for he declared that he hated the bar-barous jargon which made science so thorny and repellant to the

young. In his youth Fabre felt a strong inclination toward medicine. Had he followed that inclination, says *The Journal of the American Medical Association*, he surely would have made notable contributions to medical science. As Legros says, he had in high degree "that gift, properly speaking poetic, which is known as the clinical eye, which at the first glance perceives and confirms the diagnosis in all its detail." He also had the wift of untiring observation, the thirst for knowledge, the capacity for unlimited work and the illuminating imagination which mark the scientific discoverer. Yet we can scarcely reproach the fate which gave his faculties their own peculiar trend. Darwin styled him "the inimitable observer"; Maeterlinck called him "one of the most profound and inventive scholars * * * one of the purest writers, and * * * one of the finest poets of the century that is just past;" Edmond Rostand characterized him as "this great scientist, who thinks as a philosopher, sees as an artist, and feels and expresses himself as a poet."

OSTEOPATHS AND THE HARRISON LAW.

"As anticipated, the federal government is having much difficulty in the administration of the Harrison law, owing to the fact that there is no uniform standard as to what constitutes the practice of medicine in the different states. Not only the definitions and provisions of the statutes, but also the decisions of various courts of last resort differ widely included in the practice of medicine; in other states, it is legally distinct. The dilemma of the Treasury Department is apparent from its conflicting rulings. Treasury Decision 2232, recently issued, revokes Treasury De-

cision 2172 and substitutes the following ruling: 'Osteopaths should be permitted to register and pay special tax under the provisions of the act of Dec. 17, 1914, provided they are registered as physicians or practitioners under the laws of the state and affidavit is made in application for registration on Form 678 as required by Treasury Decision 2215 of June 10, 1915.' This form is the one used by all physicians, and contains a statement sworn to by the applicant that he is practicing medicine at the time of making application. The intent of the Treasury Department in this ruling is obvious. If the ruling had provided for the registration of osteopaths in those states in which they are legally recognized as physicians, there would be no ground for criticism. The inclusion of the term 'or practitioners,' however, leaves the entire question open to argument. What does the Treasury Department mean by 'a practitioner?' This might include Christian Scientists, clairvoyants, seventh sons of seventh sons, and every other fad or form of quackery. Suppose osteopaths are allowed to register under the Harrison law. What of it?" asks The Journal of the American Medical Association. "Such registration will not give them the right to practice medicine, unless they are given this right by the law of the state. Registration under the Harrison law will not confer any right to practice medicine not given by the statutes of the state."

THE CAMPAIGN AGAINST CANCER IN MISSOURI.

The most recent addition to the many agencies, national and local now engaged in the welfare on cancer is the Department of Preventive Medicine of the University of Missouri. This department has just published in the University Bulletin a special article on the early diagnosis and treatment of cancer by Dr. F. A. Martin, instructor in pathology. The purpose of this bulletin is to call the attention of its readers in Missouri and elsewhere to the campaign for the education of the laity which is being carried on by the American Society for the Control of Cancer, the American Medical Association and other national and state organizations, and to give a brief general survey of the cancer problem as a phase of preventive medicine.

The knowledge and skill of surgeons in the treatment of cancer has progressed, according to the Bulletin, almost to the limits of what is possible and if the percentage of cures by this, the only method of treatment which offers reliable hope of cure, is to be increased, the patients themselves must cooperate by seeking earlier diagnosis and treatment. On examining the histories of a large number of cases it has been found that the patients whom the surgeon failed to cure were those who came to him late in the disease when the cancer had spread to such an extent that to remove all the cancer cells would have required an operation so great that in itself it would be sufficient to cause the death of the patient. On the other hand it is found of another group of cases which sought treatment soon after the cancer was noticed that 100 per cent were cured. To increase the percentage of cases treated early the University Bulletin urges that laymen learn the meaning of cancer and its first warnings in order that they may go to the surgeon in time when the cancer is still in the early stages and the chance for cure is high.

Among the many facts already known about cancer, perhaps the most important is that the disease nearly always begins in some form of abnormal tissue. This abnormal tissue which is often easily recognized, may have existed for only a few months or it may have been present from early childhood without causing trouble, only to change into cancer in later life. To these bits of abnormal tissue or groups of cells, has been given the name of "precancerous lesions." The Bulletin says that not all such conditions develop into true cancers, but most of them should be kept under careful observation by a competent medical advisor and removed as soon as there is real danger of malignant disease. This is the only known method of preventing, as distinguished from curing, cancer and the Missouri Bulletin describes carefully the various forms of precancerous lesions which should be regarded with suspicion. Among these are pigmented moles, cracks on the lips, blisters, scabs and similar persisting abnormal conditions of the skin. Probably only a very small proportion of these conditions become cancer but when moles, for instance, are so located that they are subject to constant irri-

tation and when in later life they change in color and appearance and begin to grow it is time to have them promptly attended to. Moles and warts should never be treated with caustic but the whole lesion together with its so-called roots should be removed. When a burn on the tongue or lip from smoking does not heal within a few months it is a source of danger. Generally speaking, the removal of precancerous lesions is a trivial operation requiring only local anesthesia.

After true cancer has developed it is still possible to cure a large percentage of cases if the surgeon is given a fair chance while the disease is still local. All cases of cancer are local in the beginning and many remain so for a few weeks to several months. It is during this period that surgical treatment offers the possibility of practically 100 per cent of cures. Unfortunately for the patient pain is so rare at this stage of the disease and the conditions seem so trivial that in a great number of cases the opportunity to be saved is forfeited by delay. In cancer of the breast, for instance, the cases cured by the late operation amount to about 30 per cent, but by an early operation, at least 80 per cent are saved. If every woman who is not nursing would go to a surgeon within 24 hours after she finds a lump in her breast, 90 per cent of the cases of cancer of the breast would be permanently cured.

Cancer of the tongue is perhaps the most malignant and cures by the late operation are few in number. If a small ulcer appears on the tongue consult a surgeon at once. When such an ulcer is produced by a ragged tooth, consult a dentist first and then if the ulcer does not heal within a short time after the cause has been removed it is a surgeon's task.

In almost all the common forms cancer is connected with some kind of irritation. Gall stones, for instance, should be removed since it is established that from four to fourteen per cent of all cases are followed by cancer.

Cancer of the uterus gives early warning by a discharge of an unusual character at an unusual period and of unusual duration. The removal of the uterus is not a dangerous operation and if the disease is recognized at an early stage the life of the patient can be saved.

The Bulletin issues an emphatic warning

against quacks and their bogus testimonials, pointing out that their method of deception lies mainly in the diagnosis. There are so many conditions closely resembling cancer that the average layman cannot distinguish among them, and it is behind such conditions which are not cancer and which would tend to heal without treatment that the "cancer specialists" take their stand and make their false claims.

The Department of Preventive Medicine will supply copies of this cancer bulletin. Medical Series No. 9, upon request to the University of Missouri, Columbia, Mo., as long as the supply lasts.

SEIZE SUBSTITUTE SPECIFICS.

Cheap Imitations of Well-Known Preparations Peddled to Drug Store Proprietors.

Washington, D. C., Nov. 10.—Several shipments of worthless imitation drug products have been seized by the officials in charge of the enforcement of the Food and Drugs Act. Itinerant peddlers are selling to drug stores large quantities of preparations made up and labeled in imitation of high priced patent medicines of foreign origin. Only small quantities of the genuine medicines have been imported since the war began, causing a great increase in prices. Unscrupulous manufacturers are attempting to reap a harvest by substituting for the genuine medicines cheap chemicals with no medicinal value whatever. In order to make it difficult to trace these preparations to the parties responsible for their manufacture, they are not usually distributed through the regular channel of commerce, but are peddled about to drug stores by itinerants who make immediate delivery at the time of sale.

A preparation put up in imitation of "Neosalvarsan," a medicine which has largely displaced the preparation known as 606 in the treatment of syphilis, is being distributed to drug stores in this manner. A sample labeled "Neosalvarsan," which was recently examined by the Department, was found to be nothing more than salt colored with a coal tar dye, none of the genuine neosalvarsan whatever being present. The label on this product was an exact reproduction of the genuine imported neosalvarsan, or it was an

original container refilled with the imitation article.

This fraud is held to be particularly fraudulent, according to the medical experts of the Department, not alone because a worthless preparation is sold for a high price, but mainly because neosalvarsan is usually administered by injection directly into the blood of the syphilitic patient. The cheap substitute is not only worthless in the treatment of this disease, but when injected directly into the blood might work considerable injury.

Other preparations which are peddled to druggists and purport to be acetylsalicylic acid, commonly known as aspirin, a medicine of foreign origin regularly prescribed by many physicians for certain ailments, have been seized by the officials in charge of the enforcement of the Food and Drugs Act, because an analysis showed that the products were worthless imitations.

Owing to the manner in which these preparations are peddled about, it is difficult to trace the interstate shipment of any of them, and in cases where there has been no interstate shipment the Federal Food and Drugs Act has no jurisdiction. On information furnished by the Federal authorities some of these imitation goods have been seized by city officials who had authority under State laws to proceed when there had been no interstate shipment.

RESOLUTION

Adopted by the American First Aid Conference, Washington, D. C., Aug. 24, 1915.

Your Resolution Committee has the honor to report that it has carefully considered the resolution which was committed to it and has redrafted it as follows:

Whereas, There is a great lack of uniformity in first aid methods; in first aid packages, and in other first aid equipment; and in first aid instruction, and

Whereas, Many of the aims of first aid are defeated thereby and needless suffering and expense incurred,

Therefore, Be It Resolved:

That this Conference recommends to the President of the United States that he appoint a "Board on First Aid Standardization," said Board to consist of one officer each from

the Medical Corps of the U. S. Army, the Medical Corps of the U. S. Navy, the U. S. Public Health Service, the American National Red Cross, the American Medical Association, the American Surgical Association and the Association of Railway Chief Surgeons of America; this Board to deliberate carefully on first aid methods, packages, equipment and instruction and to recommend a standard for each to a subsequent session of this Conference to be called by the Permanent Chairman; the creation and maintenance of the said Board to be without expense to the United States.

Your Committee further reports that it has personally consulted the Assistant Solicitor of the Treasury and he has given the opinion that there is no legal objection to the resolution or its purpose.

The Committee has also personally consulted the Secretary of the President and he has assured your Committee that it is his personal opinion that the President will take favorable action in the premises.

Committee on Resolutions:

Major Robert P. Patterson, M. C. U. S. A.
W. C. Rucker, Asst. Surg. Gen. U. S. P. H. S.

Representing the Amer. Nat'l Red Cross.
W. L. Estes, Chairman Comm. on Fractures,
Amer. Surg. Ass.

EFFECTS OF SELECTION ON ALKALOIDS IN BELLADONNA.

Washington, D. C., Nov. 10.—Under the title "Some Effects on the Production of Alkaloids in Belladonna," the United States Department of Agriculture in Bulletin 306 gives the results of a series of tests on controlling pollination of first and second generation plants with especial attention to cross-pollination and close-pollination. Following are the conclusions reached in the bulletin:

It having been established in the previous investigation that a wide range of variation exists in the alkaloid content of belladonna plants, the present investigation was undertaken to determine whether the characteristic of alkaloid production is transmissible to the progeny through seed and whether the character is changed by vegetative propagation. The results thus far show that the first-generation plants secured from seed of cross-pollinated selected individuals display the

characteristic of the maternal parent with regard to alkaloid productivity. This condition is generally true at all stages of growth during a season and also for at least two successive seasons. Close pollination of the parent plant has shown only a moderate influence on the transmission of this characteristic.

Second-generation plants from cross-pollination have been grown at Arlington, Va., Madison, Wis., and Timmons ville, S. C., and at all three stations they have displayed the relative alkaloid-producing tendencies evident in the original parent plant and the generation preceding.

While the plants at the different localities showed a parallel relationship toward each other, there was considerable difference in the general quantity of alkaloids produced. Thus, in the case of Madison and Arlington, where two pickings were made at fairly corresponding stages of growth, it was found that the Madison plants yielded more alkaloids than those at Arlington. At Timmons ville the yield was still greater than at Madison, but here only on picking was made, and it is hardly possible to make a true comparison. Nothing definite developed to indicate that a relationship exists between the amount of precipitation and sunshine and the percentage of alkaloids produced.

Plants were grown from cuttings, and at two stages of their growth these plants showed a marked tendency to display the same characteristic regarding alkaloid production as the plants from which they were propagated and the original parents of those plants.

For the information of those desiring to enter the Medical Corps of the Navy we submit the following information:

The next examination will be held November 15, 1915, at Washington, D. C.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Norfolk, Va.; Charleston, S. C.; Great Lakes (Chicago) Ill.; Mare Island, Cal.; and Puget Sound, Wash.

Applicants must be citizens of the United States, and must submit satisfactory evidence of preliminary education and medical education.

The first stage of the examination is for appointment as Assistant Surgeon in the Medical Corps and embraces the following

subjects: (a) Anatomy, (b) physiology, (c) materia medica, (d) general medicine, (e) general surgery, and (f) obstetrics. The successful candidate then attends a course of instruction at the Naval Medical School, during which course he receives a salary of \$2,000 per annum, with allowances for quarters, heat and light, and at the end of the course, if he successfully passes an examination in the subjects taught at the School, he is commissioned an Assistant Surgeon in the Navy.

Full information with regard to the physical and professional examination may be obtained by addressing the Surgeon General of the Navy, Navy Department, Washington, D. C.

We take the following letter from the October issue of the Texas State Medical Journal: **From the Fraternal Delegate to New Mexico.** Dear Doctor:

I have just returned from the meeting of the New Mexico Medical Society at Las Vegas, where I had the pleasure of delivering the fraternal greetings and compliments of the medical profession of Texas. They had an excellent program and every detail was carried out with no friction.

Their Association had about 50 members registered. Their program was excellent and included papers from such celebrities as Drs. C. E. Edson, William Senger, John R. Espey, Leonard Freeman, and O. S. Fowler, of the state of Colorado; Dr. A. W. Morton, San Francisco, and Dr. B. L. Sulzbacher, Kansas City, Missouri, all of whom furnished excellent essays, receiving much attention. There were also many excellent papers from the profession of New Mexico.

Dr. E. F. Frisbie of Albuquerque, a lady physician, was elected president, and Albuquerque was selected as the next place of meeting.

In the house of delegates an amendment to the constitution was offered providing for a president-elect, following the plan of the American Medical Association, as we did last year. Also, their committee on public policy and legislation will hereafter be known as the committee on public health and education. In their opinion it is best to drop the aggressive plan in influencing legislation at the capital and begin to educate the people as to the necessity of such medical legislation as

may be needed, and to have the public demand of their legislature laws best suited to protect the public health, and to secure the co-operation of civic societies and religious denominations toward this end.

The Secretary of the Colorado State Society advocated a repeal of the present board of health and quarantine regulations and allow the country to go without until the public should demand and call upon the medical profession for advice, making the statement that we are misunderstood and our motives misrepresented every time we volunteer to assist the public in legislative matters. The majority, however thought such a policy would be inconsistent with our past efforts and that great harm would result from such actions.

I enjoyed the meeting very much and derived a great deal of benefit from it; as you know, for the past few years I have been unable to attend the scientific sections in our own State Association.

There were many entertaining and characteristic debates. Dr. Fowler of Denver, spoke of "beating it back to the appendix," and one of his colleagues, in the course of the discussion, remarked that "Fowler was off on the kidney." In describing a certain case a physician referred to his lady patient as one who "had social aspirations and anemia." In discussing a paper on perineal repair, one gentleman remarked that "gynecology was a lost art," to which another replied that it was only the medical side of gynecology that was lost and especially referring to the passary. An elderly physician replied, "Well it filled in mighty well all the time we used it." A surgeon, in describing the repair of the perineum as he had observed it in some localities, said "their work on the female genitalia was largely imaginary."

One of the fraternal delegates, who was the last to speak at the banquet, stated that after listening to the various fraternal greetings, especially the one from Texas, he was reminded of Tennyson's poem, "The Brook:"

"Cows may come, and
Cows may go, but
The bull goes on forever,"
Yours fraternally,
F. P. MILLER.

El Paso, Texas, September 11, 1915.

News Notes

Doña Ana County.

Dr. T. C. Sexton, Las Cruces, spent a week in the Black Range hunting.

Dr. J. N. Minetree, Las Cruces, is visiting in Arkansas.

Dr. H. C. Blair, Rincon, died October 27th on board a Santa Fe train bound for Albuquerque where he was being taken for medical treatment. Doctor Blair had been a resident of Doña Ana County for over two years and had established a most excellent reputation and a large practice in his chosen location. He was a member of the Doña Ana County Medical Society.

Original Articles

GASTRIC SYMPTOMS IN RELATION TO ABDOMINAL DISEASE.

WILLIAM SENER, M. D.
Pueblo, Colorado.

Read before the Section on Surgery, 34th Annual Meeting of the New Mexico Medical Society, East Las Vegas, September 6-8 inclusive, 1915.

In a subject with so many possibilities to consider, only a few salient features can be touched upon in the endeavor to remind you of their importance in both medicine and surgery.

Perhaps no organ of the body has received so much attention from physicians as has the stomach. Open to shocks from every quarter, the resultant gastric distress is one of the most common causes which sends the patient to the doctor.

If we pause for a moment and ex-

amine into the history of stomach diseases, we are immediately impressed by numerous phases and fads which now only may be partially explained upon a scientific pathological basis.

We realize, as never before, that this organ is subject to disease of its own, has diseases forced upon it from other sources, and is more or less the indicator of nearly all forms of bodily disturbances.

The stomach is located where it may receive the first shock of alcohol, ice water and "quick lunches"; located so that it may be first to rebel noticeably against congestion from an uncompensating heart lesion or blocked pulmonary circulation; located where mechanical pressure and interference may readily occur; located where it may receive unexpecterated sputum and drainage from pyorrhoea, the nasopharynx and accessory sinuses; located so that its nerve supply—from brain, cord, and sympathetic system—is more or less intimately interwoven with the nerve supply of other organs, so that disease in one part only too frequently reflexly irritates.

We must admit that much confusion has arisen in the past and that even at present false diagnoses are made and upon such a basis grave errors in treatment have been instituted.

Without analysis, it would seem strange that there are so many apparent recoveries under poor treatment. The explanation we all know—namely, that most acute diseases tend to spontaneous recovery, and

that most chronic diseases are subject to exacerbations and periods of quiescence—regardless of treatment. Therefore, our so-called "Dyspeptic" is supposedly cured because a period of quiescence has been reached in spite of the wrong drugging he has perhaps received.

Although the stomach has every temptation to become diseased, it is one of the most resistant organs in the body to primary lesions. Secondly, it is quite frequently attacked; while reflexly it very often shows rebellion—so marked that unless one be on his guard, the real cause is likely to be overlooked in the patient's insistence that his stomach is the seat of the trouble.

Diseases, primarily of the stomach, are for practical purposes, acute gastritis, ulcer, carcinoma, the various neuroses and chronic gastritis—although the two latter are being placed more and more in the category of disease secondary to lesions elsewhere in the body.

In reviewing the records of Minnequa Hospital during the past 14 years, I was struck by the disparity of diagnoses—in 1902 "gastritis" was diagnosed twelve times more often than at present. The number has constantly and consistently diminished year by year.

In former years the patient was apparently cured—with nux vomica, lavage, diet, rest, etc. Only too frequently did he return in a few weeks or months with the same symptoms. If the real source of trouble were then found and eradicated, he went his way rejoicing—otherwise he became a repeater un-

til he changed his physician or until the correct diagnosis was made and proper treatment instituted. After having this thrust upon one too often for his own peace of mind, I now believe that every other organ in the body should be carefully considered as the cause before the final diagnosis of "chronic gastritis" is made.

Can any of us affirm that we have not called a brain tumor a case of gastritis because of vomiting, or diagnosed a post-nasal catarrh or pulmonary tuberculosis, as a dyspepsia, because the swallowed pus irritated the stomach; or removed an unoffending appendix for a gastric crisis of tabes?

If, then, dyspepsia is one of the most common symptoms our patient may present and is rapidly becoming classified in fewer and fewer instances as a primary disease—let us always search for the original cause.

While we should not for a moment lose sight of the importance of lesions above the diaphragm which may give rise to gastric symptoms, those in the abdominal region proper are much more difficult of interpretation. The sympathetic nervous system with its manifold ganglia closely unites one abdominal organ with another. The pneumogastric also aids in these connections. So intimately are the ganglia interlinked with one another, that we may easily find an explanation of why a "jar," in the form of disease, received at one point, is felt in other parts. The stomach receives the "jar" more often than

other organs because of its more intimate relationship through these nerves. A few very brief case reports may show this feature of the problem.

For instance, although it has always been taught that only very rarely gynecological lesions produce upper abdominal symptoms—the following proves that the contrary may occur:

A young woman complained of vomiting, epigastric pain and so-called left sciatica. Several physicians had treated her unavailingly for two months. Not one seemed to realize that the apparent onset of her illness occurred ten days after she gave birth to a child and that this feature might be of paramount importance. Vaginal examination demonstrated an immense left pus tube. Operation speedily cured both "sciatica" and "dyspepsia."

A small hernia intermittently pinched in the inguinal canal may reflexly cause marked dyspeptic symptoms. And yet, such a patient may be drugged for months before a proper diagnosis is made.

In another case a negative Wasserman test taken three years ago practically destroyed the efficiency of a young man. Because he complained of symptoms suggesting peptic ulcer an exploratory incision was made, revealed nothing, and the wound closed. When the stitches were removed, the wound gaped widely and it took four months to heal. Unfortunately, a negative Wassermann at this time so impressed both physician and patient that the latter has wandered from

one to another securing little relief. It was with difficulty that he was persuaded to have another Wasserman test made. It proved positive. This patient, under vigorous anti-syphilitic treatment, has gained twenty pounds in six weeks and his gastric symptoms have entirely disappeared. (It cannot be too firmly impressed upon us that a positive Wasserman in COMPETENT hands is admittedly very marked presumptive evidence of syphilis, while the opposite does not hold true until repeated tests, covering a long interval of time, have been made).

The inter-relationship of symptoms of a diseased appendix, gall-bladder and stomach, we have long known. While not casting any reflexion upon the value of the X-ray, laboratory tests and physical examination, these must still be considered of importance secondary to a *good* history. Here the busy physician is only too likely to fail because of the time consumed in trying to sift the mass of trivial complaints from those of importance.

Even with the most painstaking care we may fail to make a differential diagnosis of upper abdominal disease. The symptoms—for instance—produced by an infected gall bladder, may mislead the elect.

Such an infection, as Mayo has shown, may spread to the liver and bile ducts; change the balance of acidity of the stomach and alkalinity of the duodenum; cause pyloric spasm; and produce marked changes in the pancreas. Facing such a conglomeration we are not

surprised when our diagnosis is not perfect.

There is, however, one thoroughly good working rule which should always be applied, namely, —to bear in mind that the diseased appendix is always, the diseased gall bladder is often, and the diseased stomach is sometimes, surgical. Make your diagnosis of the case, if need be, either surgical or medical. It may be somewhat embarrassing not to be able to tell which organ is at fault, but so long as it is diagnosed correctly as surgical or medical, we have done our duty. And the surgeon is open to criticism who does not explore the abdomen thoroughly in all cases where there is the least suspicion of a confused diagnosis.

The following case will illustrate:

A woman, age 60, asthmatic, neurotic, with a "chronic dyspepsia," was examined. She was so thin that a distended gall bladder was easily palpated. A cholecystectomy was performed and both asthma and dyspepsia disappeared for eight months. Again she returned—jaundiced, "dyspeptic" and pessimistic. An inoperable carcinoma, primary in the stomach and secondary in the liver, was found.

On reviewing her history, it was very suggestive that a gastric ulcer had existed for years, should have been recognized and corrected at the time of the cholecystectomy or later—had proper exploration been made. But with the positive findings of gall-bladder disease, other diseases were not sufficiently decisive in symptomology to make the

surgeon hunt further than the gall-bladder and the golden opportunity for forestalling gastric cancer was lost.

The history of appendicitis well illustrates the changes of medical fads. At first, utterly neglected as a cause of gastric pain, it so arose in the profession's estimation that it was blamed for nearly everything. Again the pendulum has swung so that now it is regarded that chronic appendicitis is a daring diagnosis to make in the absence of a definite history of an acute attack.

Most of us have been mortified both ways, either by not removing a diseased appendix producing gastric disturbances as its principal symptom, or by performing an appendectomy and finding later that our patient was not improved thereby.

Finally, there is that all important class we have met and dread.

A woman, well to do, childless, with social aspirations and anaemia, bright, nervous, thin to emaciation, constipated and dyspeptic, appeals for aid. She is introspective. Her uterus has been curetted and its retroflexion corrected; her appendix has been removed and her kidneys anchored; her stomach and gall bladder have been explored, externally and internally. And still she lives and enjoys ill health. In other words, she belongs to that large and seemingly increasing class so aptly called "chronic abdomens." Ptosis of a majority of the abdominal organs plus an unbalanced nervous system seems to be responsible for her ills.

This type is often a reflection on our profession. We usually do little for them medically or surgically to be of permanent benefit. They become willing prey of the quack because we, in our impatience, find nothing tangible. In our inability to realize that these cases belong rather to the neurologist and corset specialist than to the surgeon or general practitioner, we have operated her time without number. We have apologized to ourselves for our lack of diagnostic ability by hoping that a questionable operation might possibly make sufficient mental impression to cure. Sad to relate, this rarely happens and the "chronic abdomen" continues.

One of America's great surgeons has remarked that the stomach is the signal box of the abdomen, and that it is as useless to pour medicine into it when merely signaling, as to turn hose on the fire-alarm box when the latter signals that the house around the corner is on fire.

The surgeon often errs in adopting this view too literally—that gastric symptoms usually mean abdominal disease which can best be treated by operation; the general practitioner, on the other hand, too often regards epigastric distress as primarily a stomach disease.

A broader view we all know should be taken.

Remember that the stomach is rather the alarm box of the entire body. Convince your patient that his gastric distress probably has another origin than his stomach. It may be easy or difficult to find, perhaps impossible to relieve. But let

us ever remember that the cause of gastric disturbance must be sought, usually far beyond the narrow anatomical confines of the stomach and frequently at a distance from the abdomen. Only then, after we have exhausted all other organs as a possible source, should we finally turn to his much abused but resistant stomach for diagnosis.

DISCUSSION.

DR. A. W. MORTON, San Francisco, Cal.: I have been very much interested in the doctor's paper on this big topic. When a man thinks that he can diagnose the different diseases in the abdomen, he has got a big field before him and, as the doctor has said, the "signalling" that we get in the stomach of disease comes often from different organs in the body, and, as he has stated, is likely to be carried through the sympathetic nervous system signalling the stomach, while we too often look at the stomach for the trouble. Again, we must not overlook the point that he has called our attention to, that very often the trouble may be outside of the stomach in the pleural cavity. It struck me very vividly as the doctor was reading his paper that if we would classify our diseases in the abdomen into the acute and the chronic period we would not find nearly the trouble in reading the symptoms in diagnosis of the acute that we do in the chronic ones.

I could better illustrate that, perhaps, by a case that I saw a few months ago where a man of, as I remember the history, about 50 years of age, a hard-working man, a farmer, had been suffering with indigestion for a period of ten years. About seven years previously, he had had a slight attack which confined him to his bed for a few days and after eating a full meal he would suffer often with vomiting and indigestion. The slightest amount of exertion in his work on the farm seemed to bring it on. He came to me for a diagnosis. We went over him rather thoroughly and finally, as we thought, located his trouble in the stomach. We examined it, we found it free of hydrochloric acid. As we were making a stomach test, I remember, as I pulled out the stomach tube we got a tea-

spoonful of free blood coming from the stomach. I rather anticipated that we had some trouble of a chronic nature, an ulcer or a carcinoma commencing in the fundus of the stomach. We made an exploratory incision, examined the stomach, and found absolutely nothing. As we always do, we followed up and examined the pylorus and the duodenum, which were negative. We examined the gall-bladder and it was negative. Then I went down and pulled up the appendix, which I found was one of those chronic obliterated appendices which was described many years ago as Senn's obliterated appendix. We removed that. I think that has been about six months ago and the man was gained some 15 pounds in weight and has suffered no trouble from his indigestion since that time.

So, with all due respect to our laboratory work in making our diagnosis in the abdomen, I think there is a time when it is necessary for the surgeon to explore and find out the trouble. There is one point in making an exploration in doing any abdominal operation that I believe we surgeons in this country—and I know they do abroad—often neglect. Last summer while I was abroad, I watched a great number of the very best men on the Continent and on the islands operating. They make their diagnosis before they go into the case, whether it is an appendix, whether it is a duodenal ulcer, or a stomach ulcer, or a pus tube, and to my surprise they removed that and seldom ever explored the rest of the abdomen. I do not know why it is. I cannot understand why that is. I think that in this country we do very much more exploring than they do abroad. If there is any one thing that I consider neglect on the part of a surgeon when he opens an abdomen it is, even if he finds what he is looking for, the neglect to explore, for there is so often other trouble for which he should look. The same condition that produces an infection, that produces an appendicitis is very prone to produce a cholecystitis, following that by gall-stones. How many of us that are doing surgical work have removed an appendix and later we or some other person have had to go in and explore and remove a gall-stone or repair a duodenal ulcer. I do think that we should give proper weight to making our diagnosis before we operate, but when we oper-

ate we should never neglect looking at the different organs of the body and palpating them to see if there is not some other disease even if not associated with the one that you have attended to. (Applause).

DR. E. C. PRENTISS, El Paso, Texas: Of course, a wrong diagnosis is frequently made, but I think that we ought to recognize the fact, as I believe, that most of the wrong diagnoses made are due to hasty examination or insufficient and careless examination and, furthermore, a good deal of it is due to, even after we get reasonable facts, not drawing the proper conclusions. I do not believe the proper care is used as a usual thing in the examination of surgical cases. Even after the most careful examination and observation over a considerable time, some of the cases that appear the plainest will surprise us when it comes to operation. I have followed one man for about 18 months, an absolutely typical case of duodenal ulcer. He had the gnawing before meals, relieved every time by eating. He had started in with slight attacks, with intervals of comparative freedom, and then gradually it had run up to a regular thing. Blood was found several times in the stool. On operation, a very much inflamed gall-bladder was found with thickened walls, no stones, and thick adhesions going down from there to the duodenum, and no duodenal ulcer. I do not know when I have had such a diagnostic surprise as that was.

In gastric cases frequently the condition leads back to either bad habits, poor habits rather, poor physical condition, ptosis, constipation, or, say insufficient exercise, and in outlining treatment I give a good deal of attention to these things. It is astonishing how many patients will improve or get well by such careful regulation. I have run across a good many cases showing gastric symptoms due to slight obstruction in the region of the cecum or in the lower part of the small intestine—for instance, Lane's kink—and some of these cases present tenderness in the epigastric region, sometimes suggestive of gastric ulcer; for instance, blood in the stomach contents and occult blood in the stools, I think that is due to abrasions of the mucous membrane and not ulcer. At operation, Lane's kink is found and the patient recovers completely.

I think it is always a good plan when you operate—of course, when you find a gastric or a duodenal ulcer, it is probably that—always to examine the gall-bladder and not only examine the appendix, but look for adhesions at the lower end of the small intestine.

DR. HUGH CROUSE, El Paso, Texas: It has been my experience that with the best you can do in diagnostic efforts in only 30 per cent of the cases are you correct on going into the abdomen. Now that is an admission of a great deal of error, but a man who has made use of blood work, gastric analysis, stool examination, X-Ray examinations, etc., will go inside the belly and will find, as the dead room shows, that in only about 30 per cent of the cases he is correct. Dr. Haggard has proved that conclusively in over a thousand cases he has operated on. Of course, appendicitis is quite easy to diagnose, but take, for instance, the upper quadrant of the abdomen.

We had a case recently, a man who had been in the tropics for about 17 years and gave a history of three attacks of amebic dysentery. He gave all the classic symptoms, such as progressive emaciation, and we presumed that in all probability he had liver abscess. X-Ray examination, blood examination and gastric analysis, and analysis of stool were done. There was still doubt. We made an X-Ray examination of the upper quadrant and found in the right subdiaphragmatic space a haziness that led us to believe that he had an infection in the subdiaphragmatic region. I said to his brother, who was a physician: "The best I have ever been able to do is to diagnose correctly one-third of my cases of chronic affections. That may be an admission of inherent weakness on my part, but I will make an exploratory incision if you so desire." We explored his abdomen, stomach, pylorus and duodenum, all of it, gall-bladder, liver, subdiaphragmatic space, head and tail of pancreas both kidneys, appendix—all normal. I walked out of the belly and said, "Well, I don't know what is the matter with your brother, I will close him up." He died in about thirty days. We made a "post" and found that he had a scirrhus carcinoma of the sigmoid. I had not looked at the sigmoid. I looked at everything else

In fact, instead of the sigmoid being dilated in a large tumor, it was a contracted mass, so that practically nothing but a pencil point would pass through. His brother said after the man died: "Isn't that strange. You know, he had lots of trouble with his bowels. Doctor." I said, "His story did not tell it." There had been a very careful history taken—repeated histories taken. Gentlemen, I want to say to you, don't be so devilish sure of yourself.

History taking is the most essential thing. After taking one and making all the examinations, blood, gastric contents, X-Ray, etc., go back over it again, and pick up your little points, make your clinical examination again, and Gentlemen, you will often find what you could not find before.

DR. E. PAYNE PALMER, Phoenix, Arizona: I will take up the Doctor's story where he left off, regarding the history. Moynihan has a novel scheme. He has the patient sit down and write him a letter, telling him all he knows about the symptoms as far back as he can remember. Very frequently you get points in that way that you do not get in conversation. I have followed that scheme myself and very often find the patient giving the history to my secretary and then giving it to me and then sitting down and writing this letter and giving an entirely different history—that is, three histories. Then I will hand these back to the patient and tell him to look them over and correct them and then give me the correct history and finally I will get it. That is four times, and then, as the Doctor says, when you operate and tell them what you found they say, "Oh, yes, I had those symptoms, but I did not mention it." So probably, you can depend on the history, as he says, in about one-third of the cases.

I am going to report two cases in connection with this paper. One was that of an Indian woman, 34 years of age, who had been through the hands of four of the reservation physicians and had had various diagnoses made. As well as I could get a history from the four physicians—I wrote to the four of them—all said that she had a pain in the epigastric region after eating. We had X-Ray examinations with thorough and complete laboratory tests. No diagnosis could be made. I saw nothing more of the patient un-

til two years later. She came back to me for an exploratory operation, which had been advised the first time. Upon exploration, a large band was found extending from the lesser curvature of the stomach on the cardiac end over the gall-bladder, a band measuring $1\frac{1}{4}$ inches in width and $1\frac{1}{4}$ inches in thickness. How this long band could exist there unless it was a congenital condition, I have been unable to explain. In the gall-bladder there was a large gall-stone. We could account for the symptoms through the peristalsis of the stomach occurring after meals. When she got that peristaltic wave, she had a pain in the left epigastric region. The removal of the band and the gall-stone cleared up the symptoms.

The other case was a woman who had been through the hands of various physicians during a period of 16 years and finally the diagnosis was made by the last physician because she had an acute cholecystitis. When I saw the patient a few days later, I advised waiting until the acute condition subsided, because the symptoms were already subsiding at that time. Upon exploration, it was found that the woman had 12 gall-stones within the wall of the stomach between the peritoneal coat and the muscular coat. Extending from that over to the gall-bladder was a band of adhesions where there had been a perforation through the gall-bladder, the omentum had come up and walled off, the stones had finally become embedded in the wall of the stomach leaving only a small band extending between these two points. There were also some stones in the common duct. I think we removed 257 stones in all. We also found that she had a diseased appendix, which was removed.

Here were two cases that had gone, one of them for 16 years and the other, so far as we could get the history from the Indian woman—it was very hard to get—with symptoms for six years. Both had given stomach symptoms throughout, and yet the real trouble was in the gall-bladder and they were cleared up by operation.

DR. CRUM EPLER, Pueblo, Colorado: This subject under discussion, gastric symptoms in relation to abdominal disease, is a most interesting one. Now the stomach in itself is heir to about four organic troubles:

ulcer, which of course includes the effects of escharotics and poisons; cancer, tuberculosis and syphilis. I take it now that those may be left out in the discussion of this paper. The remainder of the field is entirely too large for one to discuss in the limited time, or too large to cover, as the essayist has said. However, there are a few things that I desire to mention and I also desire to discuss one or two things which have been said by the other gentlemen who have been discussing the paper.

First: It has been acknowledged here honorably and honestly by a good man that 30 per cent of his diagnoses in the abdominal cavity were correct. I am glad there were so many correct. He recites a case in which he had a history. Those of you who have been discussing have rightly put a great deal of emphasis upon the history, a most important thing. You have also mentioned your laboratory methods and you have mentioned the X-Ray. In the particular case in question at the present time, these things were said to have been used, exploratory operation was used, and a diagnosis failed in until postmortem. I desire to call attention to the fact that to use the X-Ray in one quadrant of the abdomen because the history indicates to the surgeon or to the diagnostician that that is the place he should look, is nonsense. The alimentary canal below the stomach is 27 feet long. If you are going to examine for stomach symptoms or symptoms of the abdomen that are referable to the stomach with the Roentgen ray you should examine from the cardiac end of the stomach to the anus and when you do not do it your technique is at fault. If you make laboratory examinations and make one Ewald meal examination, it is not worth a snap. When you make 15 or 20 by the fractional method every 15 or 20 minutes, you may get something. Is it surprising that the diagnosis fails so often when this work is not done completely?

In another case mentioned, for 16 years had the patient been drifting from doctor to doctor, and no diagnosis made, and nothing but a congenital band across the colon present. X-Ray examination had been made in that case, so the discussant said. It was not made properly, gentlemen, or the band would have been found.

I do not believe in diagnosing appendicitis

from the Roentgen ray, and I do not believe in operating for chronic appendicitis until the entire intestinal tract from anus to pylorus has been examined by the Roentgen rays—there is no emergency in a chronic appendicitis. It has as many symptoms referable to the stomach as any condition in the abdominal cavity. The classical appendicitis is not appendicitis at all in many instances; the appendix may be involved, but there is something above that is so frequently causing the same classic symptoms which are referable to the stomach. Find out what it is and go after that.

From the surgical side of this proposition, I do not believe in making up one's mind from the history that the trouble is in a certain quadrant of the abdomen, making the laboratory experiments indicated in that quadrant, taking an X-Ray of that quadrant, then making an exploratory operation, and after failure to find the pathology, searching through the alimentary canal. I do not believe in that, gentlemen, I believe it is poor surgery, and I believe that is why on the Continent they do not do exploration. The thing to do is to be a little more definite, a little more detailed with each method we have. And do not from history or from laboratory or from Roentgen ray, or from any one individual method, conclude that in a certain portion of the abdomen your trouble is localized, and then upon examination fail to find it. Examine in detail.

DR. O. S. FOWLER, Denver, Colorado: Did you ever notice when somebody got up and read a real scientific paper, one that we consider settled that nobody has anything to say about it; but when you read a paper to many opinions, we all get up and talk about it because we do not know very much about it definitely?

I want to say that Dr. Senger stepped on my toes when he touched very lightly on the matter of anchoring the kidney in these abdominal conditions. Now some of my friends in Denver think that I am a little bit off on kidneys. Well, maybe I am, and maybe I have been, but I am coming to the conclusion that every year I am getting closer to definite things about kidneys. I want to recite a short history of a case that gave very

distinct gastric symptoms. Gastric retention, apparently, was very definite, and complete obstruction for many hours of the pylorus. In fact, he gave a history of vomiting food, and we observed it on several instances, 14 hours after it was taken in. Now, getting gastric symptoms and retention of the food 14 hours in the stomach is pretty good evidence that you have an obstruction of the pylorus. Well, we were in doubt as to this case, whether it was the kidney or the stomach, because there were some kidney symptoms along with it. But we decided it was the stomach, in view of the retention. We explored the stomach and found it absolutely normal, never was a more normal stomach in my experience. We then got after the kidney, and with the urethral catheter got hold of an ureteral calculus which he passed with considerable pain. He has since been well.

Another case, a woman, had abdominal symptoms with general symptoms of this class—first the appendix removed, then both ovaries, then the uterus, then the gall-bladder drained, I do not know what for except that was the diagnosis and the surgeon went in and drained it. She kept on suffering. About two years later, she passed a shower of sand from the right kidney. We then anchored the kidney and rotated it so as to give it internal drainage, according to my own theories, and since that time she has had no trouble except recently when she has come back again with what seems to be trouble about the gall-bladder from probable adhesions; at least, I have proved it is not the kidney, that the kidney is there and secreting normally.

Now I can say this, that kidney lesions with a partial obstruction, caused either by stone in the ureter or by sufficient dropping of the kidney to give only a partial obstruction from the kinking of the ureter, will give just these stomach symptoms that Dr. Senger has described. I can cite more than a dozen cases exactly to the point. Now we must not forget that every patient has two kidneys, provided somebody has not removed one of them, and these kidneys give, I am positive in saying now, abdominal symptoms more frequently than any other abdominal organ. You will say at once that I am mistaken, but, friends, you follow it through for a year or

two years without prejudice and see if you do not come to the same conclusion, that kidneys more often give abdominal pain than the appendix, than the gall-bladder, than the stomach, the ovaries, the uterus, or any other abdominal organ.

In making a diagnosis, there are two fields that are entirely separate, which we should entirely separate, provided we have to make an exploratory operation. One is within the peritoneum, and the other is back of the peritoneum, or the kidneys. Now you cannot tell a thing about the kidneys by putting your hand into the belly. You say you can, but I know you cannot. You can only tell if they are in position at the time. You can tell if they come down, but what difference is that? You know nothing about the ureters or stones except if very low in the pelvis. Consequently, the kidney must be differentiated before you go in to explore the abdomen, provided there is anything at all to make you think they are involved. The organs in the abdomen can be pretty well explored through a single incision. If there is any doubt; separate these two fields.

Personally, I think we have had too many exploratory operations. I think if our means of diagnosis are entirely used in differentiating these lesions, we are not going to err very often and we do not need to go into the belly with the expectation of opening the stomach, of opening the gall-bladder and draining the gall-bladder or, if you cannot find anything else to do, taking out the appendix, then opening it and looking about for a little pinpoint hemorrhage. Where should hemorrhage come from? Probably from your handling in taking out the appendix. There is now a great wave over the world of getting away from the appendix. Twenty years ago they were taking out ovaries; nearly every woman on the table had one or both ovaries taken out. Along about the same time there was a great wave of anchoring kidneys; then the pendulum swung the other way. Now probably we are getting back to a more reasonable basis in both. The same is true of appendix cases. We are to go back, not in the next five years, but within the second five years, to a more sensible and sane view of the importance of the appendix and its place in disease.

DR. JOHN R. ESPEY, Trinidad, Colorado: This question of exploratory operation is taken rather lightly. An exploratory operation with the patient undergoing the dangers that are present in all operations is not capable of being as complete and thorough and final as one would anticipate. As a classical case, long before the X-Ray came in use, Dr. Chapman, of Philadelphia, undertook to find a bullet at postmortem. He was coroner's physician, and he cut for that bullet and he hunted for that bullet, and Dr. Chapman said that he dug for that bullet and he pulled the patient to pieces, but he never did find the bullet, and he had unlimited time on a dead patient. While I think we have to resort to exploratory laparotomy and we all do it, it is a confession of weakness. I do not know—I hope we will get away from it. The stomach has been referred to as the signal-box and it is, but it is signalling, gentlemen, in a code that we have not the key to. I think Dr. Prentiss has expressed the idea that we must learn to understand these signals by deep study of the whole profession and an occasional lift from the genius who comes along once in a generation; maybe the Egyptologist will come along who can decipher these hieroglyphics for us and then we will not do so many exploratory laparotomies.

DR. WM. HOWE, East Las Vegas: There was one point taken by the essayist which I feel has been greatly neglected in the past as at the present time. That is in regard to the chronic abdomens. This paper has been wonderfully interesting and it has brought out many valuable points in the expressions of the different men who have spoken on it. It leads one to believe that we all, can look back to past cases and see that our diagnosis was limited. Now in regard to the chronic abdomens, I think this question of ptosis is wor-

thy of a great deal of consideration. Dennig of the Stuttgart Clinic, claims that in Germany, in their clinic, 75 per cent of all women past the age of 25 have more or less ptosis of the stomach. The picture of these cases—I am referring merely to these chronic abdomens—is chronic invalidism with the symptoms referred to the stomach. When we find those cases and have investigated to the limit of our ability, I think it is a wise plan to investigate in regard to ptosis, because that is one place where the Beyer plication of the gastrohepatic ligament, which I believe is the operation par excellence, will give us wonderful results and a great deal of satisfaction, clearing up these nervous cases of associated invalidism, fermentation, gas, insomnia, toxemia, etc.

DR. WM. SENGGER, Pueblo, Colorado: I was asked to mention the Jackson veil and Lane's kink, etc. You do not hear so much about them as we used to, especially since we have found these conditions exist in horses, dogs, cats, and other animals as a normal condition apparently. These various bands are often not adhesions, but membranes which are congenital in origin and apparently do no damage. It is sometimes an apology on our part—when we open the abdomen and have to find something. I have heard surgeons say that when they get in and find nothing they take out the appendix so that they can show the relatives that they have done something. Perhaps it is a normal appendix, but out it comes.

European surgery has been mentioned. I was over there two years ago and something that disappointed me as much as anything was their apparent lack of exploration. They make mistakes over there as well as we do here. In fact, I think the surgery of this country is superior to what I saw over there.

In regard to laboratory tests, I was very glad that someone brought up the matter of stomach analysis. Give a patient a test meal. He knows that it is coming back in an hour, he thinks about how it is coming back and how it is going to feel and his digestion is upset. As a result, with one test meal, with the mental attitude the patient takes toward that meal, it is an open question how it is going to be of importance in diagnosis. A great many people examine feces for occult blood and forget that the patient recently ate meat. Of course there will be occult blood in such a stool.

The attempt of the paper was to show one thing and one thing only and that is that by using time, by using common sense, with an ordinary medical education, we can come to a diagnosis. With your acute appendix you may have free pus and you cannot explore of course, but in your chronic cases always explore and always satisfy yourself in your own mind that you have found the cause of the trouble.

We have adopted a method during the last several years in the hospital with which I am connected, by which each one of the four men there goes over every operative case. Each writes on a piece of paper his diagnosis. It is easy enough to say to yourself, if you, for instance, have diagnosed a case of ulcer of the stomach and you find gall-stones, "Oh well, I thought it was gallstones," but when you write it down and your mistake is recorded, it will make you think. I think the most honest diagnosis I ever heard was that of a physician not far from my home who telephoned that he had a patient he wished me to see. I said, "What is the matter with the woman?" and he told me, "Oh, something the matter with her guts." He was right, there was something the matter, but he was honest with himself and I think that is what we all ought to be.

INGUINAL HERNIA.

R. W. CORWIN, M. D.
Pueblo, Colorado.

Read by title before the Section on Surgery of the 34th Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., October 7, 1915.

Inguinal Hernia, the subject of this paper, is presented for your consideration.

The reasons for selecting inguinal hernia are:

Frequency of this hernia.

Confusion of terms and variation of definition.

Difference of opinion as to causes in the medical and legal professions, by the court, and among the laity.

And, on account of the recent enactment of Compensation Laws in many states.

"Hernia—(hernor, a sprout or shoot). Rupture; any tumor formed by the displacement of a viscus, or a portion of a viscus, which has escaped from its natural cavity by some aperture and projects externally.

Inguinal herniæ, which issue by the inguinal canal, are called bubonocoele when small, and scrotal hernia or oscheocoele in man when they descend into the scrotum."

"Bubonocoele — inguinal hernia; rupture of the groin—

The rupture passes through the abdominal ring and from greater size of opening, in the male, is more frequent in that sex."

Direct inguinal hernia, ventro-inguinal hernia, is where the protruding parts, in place of entering the internal ring and descending along

the inguinal canal, make a direct passage through the parietes of the abdomen, opposite the external ring."—(Dunglison).

This definition is not satisfactory, for no rupture occurs in connection with inguinal hernia.

CAUSES.

Trauma: Direct and indirect violence.

Natural: Congenital and weakness.

Traumatic Inguinal Hernia, due to direct or indirect violence, caused by blow, punch or squeeze, is possible and does occur; but is rare, and when occurring is not difficult to diagnose.

A punch in the inguinal region that may tear asunder the walls of the abdomen.

A violent squeeze that may force the contents of the abdomen through the ring or artificial openings; are of comparative little importance in this discussion, for such conditions are rare and when occurring are not difficult to detect.

On the contrary, congenital inguinal hernia is common and interesting on account of misunderstanding and claims made by patients.

Congenital inguinal hernia, a ring or opening from birth that may be gradually increased in size by internal pressure, into which abdominal viscera gravitate, or are induced to seek, we in the profession are called upon to explain to the public and satisfy the courts—neither of which, as yet, has been accomplished.

Why this has not been done seems singular and inexcusable.

To accomplish this, the anatomy must first be considered.

The anatomical structure of a normal abdomen is of such nature that the intestine or omentum *cannot* force the peritoneum through or between the layers of muscle or fascia.

Any person who has examined an abdomen and attempted to force his finger from within, through the perfect abdominal wall or between the layers of muscle or fascia, has certainly become convinced that the finger will flex before the tissues will stretch or separate.

This has been demonstrated repeatedly by the author and his assistants, at the dissecting table, and always has the normal wall defied the thrust or steady pressure of the finger.

If, under these conditions, a hernia cannot be produced, how absurd is it to claim that intestines or omentum, or both, could, under any possible strain, be forced to create a hernia suddenly.

How then is hernia produced?

1st. By congenital deformity.

As the hare lip and cleft palate may be an arrest in development, so may the inguinal region fail to complete its growth and protection.

At best there exists a natural deformity in the inguinal region and the depression or canal may be so congenitally malformed that omentum or gut would indeed be stupid if it fail to make now and then a side trip to, or take up permanent lodging in, the scrotum.

Dr. S. C. Plummer in a recent ar-

tie, entitled "The Relative Importance of Strain and Anatomic Predisposition in the Causation of Hernia" under predisposing causes, gives the following classification:

1. "Failure, partial or complete, of closure of the funicular process."

This, as all know, exists at birth, but the hernia may not make its appearance until later—any time in life—perhaps not at all.

2. "Large size of the inguinal canal—yet the patient may never develop a hernia."

Examinations will prove this condition.

The author's experience has been, that on one side, in about 66 per cent of persons examined, the ring is enlarged—that on both sides about 33 per cent of enlargements exist.

3. "Weakness of the structures forming the wall of the inguinal canal."

This may exist at birth or occur at a result of weakness, due to disease or old age.

4. "Lipomata in the inguinal canal."

There is considerable difference of opinion as to what extent lipomata is the cause of hernia.

Dr. Kellogg Speed reports that in 154 herniotomies, lipomata existed in the inguinal canal in 47.4 per cent.

The author feels that this is an under estimate, that a fatty mass varying in size is found in nearly every case.

Dr. Alexis V. Moschowitz in Medical Record, April 3, 1915, presents an exhaustive article on The Rela-

tion of Hernia to the Workmen's Compensation Law, in which he states that:

"All the great vessels of the posterior abdominal wall lie upon the intra-abdominal fascia and are covered by the peritoneum. This fact is of fundamental importance to the proper understanding of the pathogenesis of every variety of hernia, and unless, fully grasped, all subsequent explanations are unintelligible."

He further describes as contributing causes:

"The direction of the inguinal canal."

"Varicocele and Veins."

"Mobility of the Peritoneum."

"The usually erect position of the human race."

"Hypoplasia of the Tissues."

"Congenital Hernia."

CONCLUSIONS.

1. Traumatic hernia is exceedingly rare.

2. Traumatic hernia may occur in any part of the abdomen, but usually not at the site of the normal hernia openings.

3. Non-traumatic hernia is frequent and occurs at certain definite and predestined locations caused by weak areas in the intra-abdominal fascia.

Coley says:

That in the vast majority of cases hernia is a disease rather than an accident. The congenital defect is the main cause of a hernia, while the immediate or exciting cause plays but a minor role.

That it is well known to every surgeon that a one-sided patent her-

nia is indicative of tendencies or well formed hernia on the supposed sound side.

That trauma may cause inguinal hernia.

That inguinal hernia, except traumatic, cannot occur suddenly, but must have its way prepared.

That the opening must occur before the possibility of the protrusion of soft parts.

That inguinal hernia, other than traumatic, does not occur accidentally.

That if there be an opening, it is an accident; if the soft parts do not appear.

That if the wall of the abdomen be sound, no amount of pressure from within, may be made by the viscera, can produce a hernia.

That a mass occurring in a canal, made before birth or gradually formed during life, cannot be termed an accident.

Dr. Moschowitz says: "The important points to remember in the formation of a hernia are two: First, the slight and insidious onset, and, second, the slow growth."

He also presents these indicative illustrations as comparative argument:

1. "Let us assume that an individual in perfect health slips on a banana peel and fractures his thigh. We have here an injury, a trauma, followed by a fracture of the femur; the relationship between the two is well established, and such a person would be entitled to all damages that the law may allow. Now let us assume that an individual suffering from locomotor ataxia fractures

his femur in turning around in bed. We have here also an injury followed by a similar fracture of the femur, but the relationship is not established, the fracture is not due to the injury, but is due to the unusual fragility of the bones caused by the underlying locomotor ataxia. The question remains, should this second person be also entitled to similar damages?"

"The accident when an individual in perfect health fractures his humerus during the act of pitching a baseball again shows the relationship between trauma and result; but would this relationship be as fairly established if it could be proven that long before the advent of the injury this individual was suffering from a central sarcoma of the fractured humerus?"

3. "An individual in perfect health in loading a truck tears off the long head of the biceps; here we have a direct relationship between the trauma and the result; but how would this relationship be, if it could be proven that the tendon involved was affected by tuberculosis long before the receipt of the injury?"

Dr. Coley, in Medical Record, April 3, 1915, p. 583, makes the following statements:

"There was no way of differentiating an acquired from a congenital sac. He believed that practically all cases of oblique inguinal hernia were primarily due to the presence of a funicular pouch or a preformed sac, extending in varying lengths into the canal, and in a considerable number of cases, commu-

nicating with the tunica vaginalis. This constituted not a real or actual hernia, but a potential hernia, and in some cases the external ring was so tight that the patient might live a long life and never have an *actual* hernia. On the other hand, with a large ring, or even one of moderate size, a small piece of omentum was forced wedge-like into the funicular process or pouch, and any increased abdominal pressure tended to force this wedge further into the pouch until gradually the external fascial ring became dilated, and for a number of months, and in some cases, years, an *actual hernia* was forming—that was, a sac with contents, omentum or intestines. This was a slow and not a sudden process. The main point at issue in determining whether a hernia was the result of an accident, thereby probably coming under the Workmen's Compensation Act, was whether a hernia could be produced by a single application of force applied externally, or by a single increase in intra-abdominal pressure. Nearly all authorities on hernia held that actual true traumatic hernia produced by external violence were of extremely rare occurrence, as Dr. Moschowitz had already pointed out. Excluding the very small number of cases in which the patient was struck by a sharp instrument penetrating the abdominal wall, or fell upon some sharp object, which tore apart the fibers of the natural hernial opening—both of which would be associated with evidence of severe pain, local edema, and hemorrhage—traumatic vio-

lence could not be said to be the cause of hernia. Now came the second question, one that was far more important, and had given rise to more dispute in a medico-legal way than any other—whether a hernia might be caused by a single increase in the intra-abdominal tension, be it ever so great. Dr. Coley's own personal opinion based upon an experience of twenty-five years at the Hospital for Ruptured and Crippled, at which institution from 4,000 to 5,000 cases were observed annually, practically coincided with the opinions held by MacReady and Graser.

IN CONCLUSION.

The definition generally accepted is misleading when referring to inguinal hernia or "rupture."

Inguinal hernia is due to natural conditions, very rarely due to accident;

When inguinal hernia is accidental, it is a traumatic hernia;

When traumatic, it is patent.

Inguinal hernia may be likened unto a river—small at first—gradually its banks widen and deepen, possibly at times more rapidly (by high water). On rare occasions a new channel is torn through by a flood, but always in the normal river, in the beginning there is a natural passage, great or small.

Thus, with inguinal hernia, a normal passage always exists.

A new channel may be formed by unusual or unnatural conditions, but when thus formed, it is traumatic and easily told.

Inguinal hernia is not a rupture,

hence not traumatic—hence not an accident.

There is no first time in inguinal hernia—it is gradual.

When the passage has been formed, the contents may appear suddenly. That may occur frequently, several times a day—on rising in the morning or when changing from a horizontal to an erect position.

It would be absurd to say a person has a rupture or accidental hernia every time the omentum or intestine enters the hernial sac. Under those conditions one might have several ruptures or accidental herniæ daily—in the forenoon, have inguinal hernia from strain or accident, while working for one company; in the afternoon, while working for another company, a second hernia; and in the evening, on stepping off a moving street car, a third inguinal hernia; i. e. unless traumatic and patent, it is due to a natural deformity as is a hare lip.

Upon these facts the profession should agree.

If, however, the profession, the lawyer and the laity insist upon considering the non-accidental appearance of a mass in the inguinal canal an accident, it will work a hardship upon the employe and there will be but one thing for the employer to do, i. e. not to employ any one who has a suspicion of a hernia, which would exclude about 50 per cent of males.

SPONTANEOUS RUPTURE OF HYDRONEPHROSIS.

KEVIN D. LYNCH, A. M., M. D.
El Paso, Texas.

In surgical practice there occasionally arise conditions demanding some method of disposing of the divided ureter, a method which must be at once rapid and safe.

Many procedures have been devised in cases where there was a possibility of devoting some little time to dealing with the stump, and where, by implantation into ureter, bladder, bowel or skin, there was a chance of saving the corresponding kidney to the patient. But, in emergencies, when the vital indication demands the sacrifice of the kidney, the procedure in many instances has been simple ligation of the proximal stump of the ureter and letting it drop back into the abdominal cavity.

Brilliant results by this method have been reported by Frankenstein (1), while others, fearing the production of ureteral fistula, somewhat improved upon this. Stoeckel (2) ligated at some distance from the end of the stump, then doubled back the ureter, ligating once more, in very much the same way as one bends back the rubber tube of an irrigator to stop the flow. The result was very satisfactory in two cases of carcinoma of the ovary. Ebeler (3) kinked the ureter twice—ligating each time—in a Wertheim operation for cancer of the cervix.

The rationale of the above procedures is based on the fact that experimental work on the production

of hydronephrosis and the result of total exclusion of the ureter has shown that, in some instances, the corresponding kidney undergoes an atrophy practically complete, in others becoming hydronephrotic in varying degrees according to the duration of the obstruction.

From the review of Bottomley's (4) article on congenital atresias of the ureter, wherein 56 cases are given, hydronephrosis more commonly occurs than atrophy, only four showing the latter condition. Lindemann's (5) experimental work showed an equal number of hydronephrosis and atrophy, whereas in the researches of Sollman (6), Scott (7), Pearce (8), Amos (9) and Albarran (10) occlusion of the ureter in most cases produced hydronephrotic changes in the kidney, thus coinciding with the results of Nature's own vagaries as seen in Bottomley's cases. Dowd (11) reported a case due to complete obstruction of the ureter by stone, and Cumston (12) one due to complete stricture of the ureter.

The evidence, then, would seem to show that ligation of the proximal stump as an emergency method in an ureter, divided unintentionally or not, would result in an hydronephrosis of the corresponding kidney. As far as renal function goes, it would seem to be a safe procedure, for all the authors cited agree that the opposite kidney undergoes compensatory hypertrophy, with corresponding increase in excretory and secretory activity.

The surgical mind is not apt to associate hydronephrosis itself with

any grave danger, but rather with its remoter complications of destruction of renal tissue and susceptibility to infection. There may be, however, an extremely serious sequel—often a fatal one—to its production, and one especially to be thought of when occasion arises for an operator to decide as to the best method of treating ureteral lesions. The great danger is that of spontaneous rupture of the hydronephrotic kidney, of which the following case affords a good instance:

The patient was a woman, 35 years old, who had journeyed to us 50 miles in an automobile to the railroad, then 350 to the hospital. On admission she was extremely anaemic and in a weak condition; the leading symptom was uterine hemorrhage of a severe type.

A large tumor mass was felt in the abdomen connected with the uterus, and immediate operation was deemed advisable. The abdomen was opened in the median line and the tumor found to be a large friable chorio-epithelioma extending upward and to the right for a distance of eight inches.

A rapid, complete hysterectomy was done, in the course of which the right ureter was found to run through the tumor mass. The patient being in a serious condition, the ureter was simply divided and ligated above the tumor mass and then allowed to drop back into the retroperitoneal space after the method of Frankenstein (13), employed in a nearly similar case. Hypodermocyclysis was begun while the patient was still on the operat-

ing table, and continued, at intervals, for several days; proctolysis was also used fairly continuously. There was a quick rally from the effects of the hemorrhage, but complaint of pain in the right side. At the end of 48 hours a tumor was evident—hydronephrosis the diagnosis—but it was deemed advisable to let it alone, as she was in no condition to stand another operation.

On the sixth day, violent pain, followed by symptoms of diffuse peritonitis ensued and death took place in a few hours. The post-mortem showed that the hydronephrosis had ruptured into the abdomen and considerable hemorrhage had taken place.

From a careful search through the literature, it would seem that spontaneous rupture of a hydronephrosis is a rare surgical condition, only six cases prior to our own being reported.

One of these—Sexton (14)—should probably not be included; as it is described as “rupture on exertion,” it really belongs to parietal rupture of the kidney, for which hydronephrotic kidneys offer the suitable hydrostatic conditions, and of which there are fairly numerous case reports.

Another, described by van Hoffman (15) as “rupture of a hydronephrosis due to collargol injection,” may be suitably classed among the spontaneous ruptures of hydronephroses, Keyes (16) criticism of this report being well justified.

Taylor (Lancet. Oct. 4, 1884) records a case in a girl, of acute hydronephrosis, which ruptured into the peritoneal cavity, but which was successfully treated by laparotomy in the median line, cleansing of the peritoneum, and stitching the cyst walls to the abdominal opening. Roberts (Hydronephrosis, Syst. Med. (Reynolds) vol. v. 1979.) found it only once in 19 fatal cases.

The other two cases are those of Blondeau (17). Kalinovski (18), the one, similar to our own case, being rapid in onset and quickly ending in death; the latter due to stone in the pelvis and rupture following after the condition had persisted for some time.

Spontaneous rupture of hydronephrotic cases is not even mentioned as a possibility in the writings of prominent authors such as Kelly (19), Johnson (20), Watson & Cunningham (21), Osler (22), Morrow (23) and others. No experimentally produced hydronephrosis has been reported as spontaneously ruptured, so the factors producing the fatal accident in the cases mentioned, remain obscure. It is interesting to theorize on the fact that each case presented the possibility of a weakening of the pelvic wall (tumor metastasis, catheter trauma, stone ulceration) with the exception of Blondeau's, where the cause of the hydronephrosis is not mentioned.

The conclusions which may safely be arrived at after this little exploration of the subject are that:

1. Spontaneous rupture of hydronephrosis is very rare.

2. Compared with the risk of lengthy procedures in dealing with the divided ureter, it would seem that simple ligation should be the preferred method in desperate cases.

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SOME SUGGESTIONS ON MODERN TREATMENT OF FRACTURES.

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Read before the Section on Surgery of the 34th Annual Meeting of the New Mexico Medical Society East Las Vegas, October 7, 1915.

As fraternal delegate from The Colorado State Medical Society, I salute you.

As these sister states occupy similar positions on the backbone of the American continent, where mountain and plain join, so have they many similar civil, agricultural and mining problems to solve. Both are interested in training the buoyant spirit of the west into the best of citizenship without depriving it of its aggressiveness which we value so highly.

What more nearly concerns us at the present moment both have the same medical, pathological and hygienic problems to solve; and I think we may say without bombast both have able men engaged in the solution thereof.

It is therefore most fitting that each send not only a formally ac-

credited delegate but as many interested observers as possible to the annual meeting of The State Medical Society of the other.

I feel myself particularly fortunate to be delegated to hear the papers and discussions of this society for which we in Colorado have so high regard. May I also hope for a goodly attendance of the members of this society at our meeting in Denver on the 5th, 6th and 7th of next month?

The treatment of fractures is a part of the occupation of most general practitioners to whom fall the conduct of the majority of the uncomplicated fractures. While many fractures are treated in hospital with all conveniences, it is probable that as many or more are treated outside of hospital with appliances more or less improvised.

The greatest of surgeons have suffered in reputation and often financially by failing to get perfect results in fractures. Are we of the present generation—the heirs of the ages—benefited by the X-Ray and the open treatment of fractures—at last able to get only perfect results, all the serious problems having been solved?

No, gentlemen, we are playing to a far more critical audience, and while we have advantages not possessed by our forefathers we have relied upon that fact until I fear we are not as thorough in the essential rudiments as a former generation. Deprive us of the great benefit of the X-Ray and we find the great body of practitioners perhaps not as well grounded in the actions and

antagonisms of the muscle acting on bones and joints as the old masters in the art of reduction and retention of broken bones. And, gentlemen, great aid that the X-Ray is, it will not reduce a fracture although it will often show us we have not and more than occasionally that we cannot make an absolutely perfect reduction.

The X-Ray shows us troubles we could not know without it and it also shows that apparently perfect functional results without obvious deformity are not perfect from an anatomic standpoint. And therein it causes the modern surgeon untold worry. After he has used the best efforts and achieved a result of which he may well be proud—his patient apparently and actually in as good condition as though he had not suffered such violence as to fracture his bones—the patient comes into possession of an X-Ray plate that shows that the bones are not absolutely and actually aligned as they were before. Horrors, he is deformed for life and can think of no means to alleviate the misery of his condition excepting the much dreaded damage suit. Has not the surgeon who has labored long and well to effect a cure for him an automobile and a residence and perhaps a little hard earned money beside? And wouldn't it be more appropriate that he should divide these luxuries with the patient than that the patient should pay the surgeon a fee? And, too, frequently, by the aid of an unscrupulous attorney, twelve sympathetic fellow citizens in the jury box and a properly—or

I should say very improperly—exhibited plate, he may be successful. I think the early history of the X-Ray beside much that was beneficial caused many such troubles.

Now, what is the remedy for this annoyance that makes the most efficient and conscientious surgeon dread being held responsible for his really successful work?

We must educate ourselves and more especially the public to the fact that a result that restores function with little or no obvious deformity is to all intents and purposes a perfect result and such as the very masters of our art are entitled to be proud of.

I think most of the courts have made an advance that does away with a great source of error—namely, where they formerly allowed X-Ray plates to be shown to a jury to draw their own uneducated conclusions from—now they require the maker of the picture to interpret it to the jury. They should go farther and require that only the plates and interpretations of a Roentgenologist or specialist should be used.

There has been rather too much amateur work used in the professional application of the X-Ray. You have found and I have found that it is much easier to take a very fair X-Ray picture than it is to properly interpret the same. Years ago I commenced to dabble in the art along with the many other duties of a general surgeon, and while I still use it myself at times with some satisfaction, I find that for accurate, definite results I need a plate and an interpretation from a

specialist; and aside from the miserable ethics of it I would not regard my work in that line as suitable for a medico-legal controversy.

On the other hand, the mere fact that you have used the X-Ray might have an influence in avoiding legal entanglements on the ground that you had availed yourself of all means of accurate diagnosis.

All are agreed now that the routine use of the X-Ray in fractures tends to more successful treatment of fractures both by showing the position of the individual fracture before and after reduction, and by its educating effect upon the surgeon in illustrating cause and effect in the treatment of fractures.

I wish to say a few words about the open or operative treatment of simple fractures.

This procedure is not advocated with quite the persistency now, I think, that it was when our views of it were almost entirely theoretical. It has been quite freely tried out, has produced some absolutely ideal results that could not have been otherwise attained but has demonstrated that it is a two edged tool. It has caused some amputations that would not have occurred under more conservative treatment, probably cost a few lives—for suppuration leading down to bone marrow is still not without its danger to life, and has demonstrated that an ideal realignment of a fractured bone is not always followed by a perfect functional result. Probably it is a fact that some or perhaps all of these unfavorable results are due to imperfect surgery in the perform-

ance of the open operation. Surgery is far from a perfect art, but in the present state of development well do we know that many an operator and many a hospital that have shown long series of perfect results in abdominal and cranial operations have been able to report but short series of consecutive operations with Lane's plates, metal sutures, screws and plugs without suppuration and disaster or disaster threatening and narrowly averted.

Lane's statistics have not I think been duplicated in America. The same pedantic efforts to prevent infection that will be successful in operations through the peritoneum will quite often be followed by infection in applying mechanical fixation directly to the bones in fracture. The wound must not be soiled by the gloved hand of the surgeon but all manipulation must be indirect by the use of instruments with which few engaged in general surgery will become really adept.

I think all considerable statistics have demonstrated that union is slower and recovery of function more delayed by reason of the foreign body and the additional traumatism than when the inserted appliance is not resorted to.

In addition to this delay there is not an inconsiderable percentage of cases that require secondary operation to remove the appliance or perhaps small sequestra with it.

It also happens that notwithstanding perfect realignment of the broken bone we have not as good a functional result as might be attained by the closed method without

quite so perfect an allignment. The cause of this is that we have made a single into a multiple injury. In addition to a broken bone we have cut through skin, fascia, muscles, nerves and blood vessels, and while the broken bone heals in ideal position innervation and blood supply are deranged, the retaining fascia and muscular action may never again be as good as before. Also a slight infection, not sufficient to endanger union nor threaten life or limb may cause adhesions of these various soft tissues with more or less permanent impairment of function.

While the above drawbacks and dangers must always be considered it must be admitted that when successful the open treatment may give a more ideal result than the closed.

Of course, you understand that the above remarks do not apply as limiting the open operation in the treatment of non-union when there may be no other recourse. But even then I like to consider it as delayed union rather than non-union for a considerable time, as more than once it has occurred to me to see the union of which I had well nigh despaired take place without resort to so radical a measure.

In case of apparent non-union where I am satisfied with the alignment and can find no evidence of interposed muscle or fascia, I have been very fond of drilling several holes in the end of each fragment which can generally be done through a single puncture of the skin and should hardly be regarded as an open operation, as with careful

asepsis and slight traumatism it causes but trifling danger of infection.

In these cases the use of the drill before resorting to the more serious radical operation will, I am satisfied, reduce the indication for the latter by at least 60 per cent and the risk to the limb nearly as much.

The saving of time may sometimes be a good and sufficient reason for adopting the more radical operation of mechanical fixation of the bone direct.

If, however, you use any of the non-absorbable appliances for the mechanical fixation time considerable will be consumed.

From happy experience with it I much prefer an insert of bone from the patient's tibia placed in the medullary cavity of both fragments when feasible.

I also confess to a fondness for No. 3 chromic catgut for suturing the bone. While the stock objection to this is that it absorbs too promptly, I am inclined to think that in favorable cases you will have some union by the time the catgut absorbs. At any rate in the length of time it takes for the catgut to absorb metallic sutures and screws will have become somewhat loosened by absorption of bone around them.

Having mentioned the factor of time I wish to disagree with a statement repeatedly occurring that in case of a working man—meaning physical labor—his necessities may require that the less time consuming method be resorted to at the risk of a less perfect result. Now it occurs to me that it is in this class of cases

that the most care is necessary including all the time needed that the most perfect result possible be obtained, as while he who earns his living by mental application or by no exertion at all might be relatively but little disabled by a functionally imperfect arm or leg, permanent disability in a laboring man is of the gravest importance. Nor have I usually found them so impatient but that they wanted every possible effort made. Perhaps I have been fortunate in that a large percentage of my cases of this nature has been with individuals whose hospital expenses were being met from the Hospital Fund of a corporation.

It has fallen to my lot to handle quite a number of cases of serious compound fracture caused by great violence, as in mining and railroad injuries and I am very much gratified that the last seven or eight years have shown decidedly better average results than any corresponding previous period.

This I attribute to the fact that formerly I scrubbed, shaved and irrigated all of these wounds, whereas latterly I have merely applied tincture of iodine for a considerable distance around the laceration in the skin, and either with a gauze sponge or by pouring, into the wound and over the protruding bones. After this application I have carefully reduced the fracture, applied a sufficient gauze dressing over which I have applied whatever retention might be indicated in a simple fracture. Often these wounds will not be dressed again for ten days, although a careful watch is maintained for any indication to redress.

When I first adopted this simpler method I often felt that I had not done enough as it took so much less time and was so much easier, but now experience has taught me that formerly I did altogether too much.

I am now a firm believer in the dictum to stay on the outside of a compound fracture if possible. All cases cannot be treated just so simply but I seldom have to suture, plate or directly fix the bones in alignment and rarely entirely suture the wounds in the soft parts regarding drainage and the avoidance of tension as essential to rapid repair.

Very often I have found these compound fractures at first redressing converted into simple fractures and treated as such, however, with the continuance of the gauze dressing which can be so applied as to be useful as a retention pad.

If the interior of your compound fracture is already dangerously infected when it comes to you I am satisfied that all the scrubbing, shaving and irrigating possible will not remove the infection from the lacerated tissues but the irrigation and manipulation will put the tissues in a worse condition for rapid healing or combatting the infection.

Also there is grave risk that where no infection has gained admission to the interior of the wound the scrubbing and shaving may introduce infection from the skin surface. On the other hand if no infection has occurred all that you can reasonably do is to protect your wound by applying tincture of iodine or some similar antiseptic over the skin surface for a reason-

able distance around and apply an aseptic dressing.

In these cases as in fact in all fractures I prefer properly adjusted pads rather than too tight application of splints or retention apparatus as far safer and less liable to interfere with the circulation, cause pressure sores, adhesions of soft parts or nerve injuries which may lead to so much permanent disability. While every effort should be made at the first dressing to reduce and hold a fracture, often we will have to change our appliances a number of times before being satisfied that we will obtain the best result possible. If these changes are limited to the first week probably no real harm results from the changes.

A knowledge of the splints devised by others is essential but it is our own application of a splint to the individual case that gives us the best results.

While passive motion and massage are often of great benefit in preventing ankylosis and adhesions any violence in their use will cause these complications.

Too early active use is one of the commonest causes of accentuating whatever slight deformity may occurred in our reduction. Particularly is this so in early weight bearing on a fractured femur converting slight deformity with trifling shortening into marked angularity and disabling shortening.

DISCUSSION.

DR. H. A. MILLER, Clovis: I think that Dr. Espey has fully covered the field and there are only a few things that I desire to

accentuate. One is the interpretation of the X-Ray plate. I think that there are very few men who can properly interpret an X-Ray plate. While X-Ray plates are absolutely indispensable to the treatment of fractures and assist the surgeon, they are liable to be a source of considerable annoyance to the man who treats a fracture. Being in railroad work, I have had experience along that line.

The remarks of the Doctor on individualizing these cases appeal to me. While one should have a general knowledge of splints, etc., he should absolutely individualize each case.

In the treatment of compound fractures, in the matter of drainage, I like to use fenestrated rubber tubing. I do not depend at all on gauze now, especially where there is, from impact of the bones a great traumatizing of the soft tissue.

So far as the autogenous bone splints are concerned, or grafts, whichever you may call them, we have had an elaborate presentation of that subject already from Dr. Morton. The subject is too extensive, I believe, for the general surgeon to pick up and the apparatus is rather expensive. I am more familiar with Freeman's method of immobilization by the use of rods removed from the point of solution of continuity that is, the open treatment distant from the point of solution of continuity by the use of rods, and of the routine apparatus with over that.

DR. S. D. SWOPE, Deming: I think, Mr. Chairman, that the paper is entirely too important not to have further discussion. It is a subject which gives us more trouble, especially to the men who are in railroad work, than any other that we have to contend with.

The question as to whether a compound fracture should be interfered with, it seems to me, is always to be decided by whether it needs interference or not. A compound fracture, aside from the danger of infection, is no more difficult of union than other fractures if it can be retained in place; but when we have a compound fracture we must always remember the danger, in fact the most always positive fact, that there is imposed between the ends of the bone some foreign substance which will interfere with the osteoblastic proliferation. This has been brought to

my notice a number of times in my small experience. We have all had the experience of having a femur fracture in a long-legged individual. As the local surgeon, we have done him up in plaster paris and sent him to the district surgeon a long way off, telling him that there was five inches of shortening to start with, have the district surgeon never take off the cast and the fellow come home with a good leg with a slight roll to his walk. Then, again, we have all had such experiences as this. A compound fracture impossible to hold in place with any other means than some mechanical material, demonstrating beyond a possibility of doubt that it must be retained by some mechanical material, using the black iron staples, have them break from muscular contraction, recognizing the futility of a bone splint in such a case as that, putting on two Lone plates and having this to go on from day to day and month to month, taking off the plates, and finally getting a fairly good result with a long, long continued, disappointing, unsatisfactory treatment of a nasty case.

Now the question comes down to this: Put the fracture in place, hold it there by the simplest method, drain it if it needs drainage. Outside of the quality of honesty give me in the surgeon the man who is adaptable, who can for each individual case do that which is best.

There is a fracture that I have seen only once and recall now simply to make a slight comment on it. That is a fracture of the neck of the calcaneus, in which the distal end of the fragment rolls over, turning the articular surface to the fractured surface and leaving the posterior surface against the articular surface of the tibia. That kind of a fracture came to me recently. I advised the open method of treatment and the turning over of the bone. I was mighty glad they refused. The fellow is going around with a stiff foot all right, but I have always wondered if I would have got that bone back in place.

DR. LEONARD FREEMAN, Denver, Colorado: The gentleman who spoke first was kind enough to mention my method of treating fractures by an external clamp. It was very kind of him to do so, but I wish to correct him. It is really the method of Dr. Park-

hill of Denver, one of the most brilliant surgeons in the west in his time. He brought the method into use in this country and popularized it and it would be very bad form indeed for me to claim it myself. The only thing I claim is a special form of clamp for carrying out the method.

I listened with much pleasure to Dr. Espey's most excellent, conservative and thorough paper and I am very much tempted to discuss it because I am greatly interested in the subject, but I wish instead to bring forward something that I think is of importance. In the American Surgical Association, at the last meeting, a committee, of which Dr. Estes, of South Bethlehem, Pa., was at the head, and of which I happen to be a member, was appointed to make a report upon fractures. After a good deal of investigation carried on by the committee in various parts of the country, particularly in the east, they came to the conclusion that they could not make a report that amounted to anything and the reason was that there are no such things as statistics of fractures in ordinary hospitals and in private practices. We say, "I think so", and, "It is our impression that it is so an so," "I think I have had so many cases," "I think perhaps that such and such a surgeon has done so and so," but we do not know. So this committee resolved and so reported to the American Surgical association that they should get up a blank, to be circulated over the United States and given to the various hospitals, made out in such a way that it could be filled out by the various surgeons and would give us finally in the course of years some statistics that we could actually rely upon. Unfortunately, the committee did not have enough money to print a sufficient number of these blanks to send to everyone, but they intend to send out blanks to various selected hospitals, and physicians, and they wish to have these blanks copied and printed by other hospitals in different sections of the country. I am calling your attention to it here so that perhaps some of you may take the matter in hand. By writing to Dr. Estes, of South Bethlehem, Pennsylvania, you can get a copy of this blank and can have some printed for the hospitals here in New Mexico, and I most sincerely hope that you will do so because it is a very crying need in this country to have some reliable statistics on the question of fractures.

DR. A. W. MORTON, San Francisco, Cal.: I

only wanted to say a word on the first part of the Doctor's paper. He very vividly described there the doctor with his little home and his little money who gets an ordinary functional result and a bad anatomical result and what is going to happen with an unscrupulous lawyer agitating the patient with "some doctor is not friendly to you." That is a point I did not take up this morning, but it is one we are all interested in, we are all meeting. We are going to meet it more and more as years go on if we do not get better results and yet in simple and in compound fractures we do not get them. What is the best thing to do under the circumstances? In the the first place, a man ought to get insured in some good indemnity company, because when you come to fight a case, pay your lawyer and the witnesses, it is going to take off a great deal of a doctor's earnings. In the second place, do not treat a fracture without good consultation. You never know where you are going to end with them. Have one or two good men see the case with you with the ordinary treatment. Then you are properly prepared to go before a jury in that case. If you treat the case without the preparation that I speak of it is liable to cost you a lot of money, time and reputation in defending the case before a jury. Even with the best results that we can get there are oftentimes cases where things do not look as we would like them; then we have to look to protecting our own interests in the best way that we possibly can.

DR. L. S. PETERS, Albuquerque: It has been nearly eleven years since I did fracture work and I rise at this time only to mention a safeguard that I think is well worth taking. At the Albuquerque Sanitarium we put in a very good X-Ray simply to control the lung cases, and having that and it being the only X-Ray in town, we commenced to do general work, and I was impressed with the fact that there must be quite often a displacement after you have set your bone. After you think you have got your splint on well and your ends in apposition, either through a jar or some slight accident to the patient or the swelling in the arm going down and leaving it loose—whatever part may have been broken—your bone is displaced and you get poor results. I think certainly in all ambulatory cases, where there is a fracture of some of the bones of the chest or of the upper extremities, or in the lower extremities where you can get the

patient on crutches and bring him up and get a good picture made, that it is a good thing to do. If you have a poor result and a damage case comes up, you can show that at least the thing was set right and that it was beyond any preventive means of yours that the thing has become displaced. I think many damage suits could be prevented in this way.

DR. JOHN R. ESPEY, Trinidad, Colo.: Dr. Miller spoke of rubber drainage tubing and I cannot deny the frequent necessity for it—in fact, I frequently use it—but my experience with compound fractures has been—and I believe others have had the same—that the violence to the external surfaces is very liable to be anterior, either in the leg or in the arm, and to put a rubber drainage tube down to that does not, perhaps, accomplish very much, especially if we are going on the theory that it is not infected. Moreover, if we want that surface covering to rapidly heal and if in this limb already very seriously traumatized we dig on down through the limb to carry a drainage tube through and through, we are liable to compromise our chances of turning that rapidly into a simple fracture. There are sometimes cases where we do not hesitate to put in a rubber drainage tube, although it is far more common that we do not. I think perhaps Dr. Miller got the idea that where I do not do that I put in a gauze drain, which I very rarely do. I might occasionally, but as a rule if I can reduce the fracture without too much manipulation and can let the soft parts drop together and think that I have a reasonable chance there having already occurred no infection—as I said a while ago if infection has occurred I do not feel very able to remove it at that stage of the game—I will not put in drainage. I also avoid too tight stitching. In a large wound, I might put in several sutures; in a smaller wound, I might put in a few sutures. In this way, I would expect some drainage to occur.

Along the same line, Dr. Swope speaks of the violence causing a greater liability of interposition of muscle or other things from the leg or arm or wherever the fracture is. I do not know that it is greater and I think you have a better chance to remove it, not with your gloved hands perhaps, but with instruments. If there is a bone protruding, I do not hesitate to put that bone back in place with a boiled instrument, I do not hesitate to

swab the end of it with a sponge that has tincture of iodine on it and replace it and at the same time definitely feel whether there is any interposition of soft material or not.

As to the calnaneum, which Dr. Swope brought up, I would not know any way to restore that and retain it except by the open operation and even then I might be tempted to cut the tendo Achilles while I was holding it in place, expecting the tendon to recover at least as soon as the bone did.

As far as the insurance is concerned that Dr. Morton speaks of, while I, fortunately, have never had anybody come to me and say they wanted money or my house or automobile—I guess they did not see any in sight and realized they would not get any—I would not sleep at night if I did not have that insurance. I think everybody who does any surgery or work in fractures ought to have it. If I remember my policy correctly, for \$20.00 a year I would get a suit defended until it cost \$5,000 or had gone through all the legal causes of delay that could be interposed before a judgment was made against me, and then the company pays the damages up to \$5,000. If my recollection is correct—I did not look into that policy before coming—they will defend three such suits in a year. That ought to be pretty reasonable protection and I do not think insurance companies lose much by it. It is a protection in this way: If tomorrow I went home and found one of my fracture cases had not resulted well and he came in after some money and I would not give it up and he told me he was going to sue me, that he would get some from me in that way, I would say, "Go to it, it will not cost me anything. I have a good policy and they will fight it until it costs them \$5,000 or until they can't put off judgment any longer." And as the lawyer is probably kicking up the trouble and taking the case on a contingency and wants to get \$200 or \$300 in his pocket and does not want anything else, I think that the bluff that the policy makes will keep a large majority of these suits from ever being pushed.

The point that the doctor from Albuquerque makes as to changes after reduction I think is very important. That is why I said we should not necessarily be satisfied with our first appliance. We should know later that this appliance is holding the fracture reduced because to reduce it and then a week after when it commences knitting readjust it

is unsatisfactory, and on that account I prefer subsequent X-Rays where possible and if not a careful examination and palpation which is in some fractures quite as satisfactory to see whether the bone is being retained.

PROPAGANDA FOR REFORM.

Iodum-Miller.—The A. M. A. Chemical Laboratory reports that Iodum-Miller was found to be essentially a solution of iodine and potassium iodide in glycerin containing 1.68 per cent. of free iodine. The Council on Pharmacy and Chemistry reports that Iodum-Miller was not eligible for New and Nonofficial Remedies because incorrect statements are made in regard to its composition; because unwarranted therapeutic claims are made for it; and because the application of a trade name to a simple solution of iodine is not to be countenanced. *Jour. A. M. A.*, Oct. 2 1915, p. 1202).

Iod-Izd-Oil (Miller).—Analysis in the A. M. A. Chemical Laboratory indicated Iod-Izd-Oil (Miller's) to be a simple solution of iodine in liquid petroleum containing, not 2 per cent. of iodine, as claimed, but only 0.42 per cent. The Council on Pharmacy and Chemistry found the preparation ineligible for New and Nonofficial Remedies because the composition is not correctly stated and because the application of a trade name to a simple preparation of this sort is irrational. (*Jour. A. M. A.*, Oct. 2, 1915, p. 1202).

Hexa-Co-Sal-In.—Hexa-Co-Sal-In (Hexa-Co-Sal-In Company, Red Bank, N. J.) is advertised as "a condensation product of familiar composition" and that it is "colchi-magnesium salicylate with anhydrous hexamethylenamine." An examination made by the A. M. A. Chemical Laboratory showed that Hexa-Co-Sal-In is a simple mixture of hexamethylenamine, magnesium salicylate and some colchicum preparation. The Council on Pharmacy and Chemistry reports that the statement of the composition of this preparation is false; that unwarranted therapeutic claims are made for it and that the mixture is unscientific. (*Jour. A. M. A.*, Oct. 2, 1915, p. 1203).

The Soy Bean.—The soy bean is of medical interest: (1) because it contains the enzyme, urease, which converts urea into ammonia and carbon dioxide and hence is used to es-

timate urea in urine; and (2) because soy bean products have been recommended as foods for diabetics. Street and Bailey of the Connecticut Agricultural Experiment Station report that although the soy bean contains about 25 per cent. total carbohydrates, only about 8 per cent. composed of sugar, starch and dextrin, may be considered objectionable in a strict diabetic diet. Thus the sugar-forming carbohydrates contained in soy beans fall well within the limit of 10 per cent. regarded as safe for diabetics. (*Jour. A. M. A.*, Oct. 16, 1915, p. 1372).

Somnoform.—This was originally composed of ethyl chloride 60 per cent., methyl chloride 35 per cent. and ethyl bromide 5 per cent. Now it is said to contain but 1 per cent. ethyl bromide. Like ethyl chloride, Somnoform has been used as a substitute for nitrous oxide before ether anesthesia and for short operations, but has been mostly used by dentists for extractions. It is doubtful if the mixture has any advantage over ethyl chloride. The mortality is less than that of chloroform, but twice that of ether and four times that of nitrous oxide. (*Jour. A. M. A.*, Oct. 16, 1915, p. 1391).

Some "Patent Medicines" for External Application.—The following statements of composition is indicated by the reports of various state boards of health, the government chemists and the A. M. A. Chemical Laboratory: Amarol, a "complexion beautifier," is composed of Epsom salts 95 per cent. and borax 5 per cent. Anti-Freckle Lotion (Gustin's) contains mercuric chloride 1.5 per cent. Calocide, for "foot trouble," is sodium chloride 22.44 per cent., borax about 37.58 per cent., alum about 39.35 per cent., tannin small amounts. Cerol, which "cleans and clears the skin," is boric acid, stearic acid and perfume. Clearola, which will "whiten the skin," is sulphur. Cuticle Acid, to "remove dead skin," is alcohol 10 per cent. and oxalic acid 2 per cent. Derma-Royale for skin affections, is a dilute alcohol-glycerin solution with small amounts of camphor, myrrh, benzoin and possibly other aromatics in suspension. Eptol, a wrinkle remover, is essentially borax 37 per cent., soap and stearic acid 63 per cent. Fatoff was found to be essentially soft soap. Gloriot Balm, a vanishing toilet cream, is composed of stearic acid, soap and borax 23.7 per cent.

water 76.3 per cent. Gloriol Glowene, said to be a substitute for soap, is soft soap. Zemo for eczema, pimples, dandruff and similar affections, appeared to be a watery-alcoholic solution containing methyl salicylate, thymol borax, tannic acid, glycerin, menthol and a phenol-like body. (Jour. A. M. A., Oct. 16 1915, p. 1365-7).

Lactopeptine and Elixir Lactopeptine.—Lactopeptine is sold under the claim that it contains pepsin, diastase, pancreatin, lactic acid and hydrochloric acid. In 1907 the Council on Pharmacy and Chemistry reported that Lactopeptine was practically inert—"essentially a weak saccharated pepsin," devoid of tryptic activity. An examination made by the Council in 1913 confirmed the previous findings. Nearly four months after publication of the last report, the manufacturers protested against the report, claiming that Lactopeptine possessed pancreatic activity and contained "loosely combined" hydrochloric acid. The Council now reports that an examination of the market supply demonstrated that a few recently manufactured specimens showed slight (therapeutically negligible) tryptic activity, but that most showed none; the amount of hydrochloric acid was insignificant. Again declaring Lactopeptine and Elixir Lactopeptine ineligible for New and Nonofficial Remedies, the Council points out that, whatever the tryptic activity of the mixture, it is therapeutically useless. Mixtures of pepsin and pancreatin are irrational. The two substances are not indicated in the same conditions nor can they act together. Under physiologic conditions such mixtures are chemically impossible. In a liquid medium the two substances destroy each other. (Jour. A. M. A., Oct. 23, 1915, p. 1477).

A Therapeutic Absurdity.—Lactopeptine whether in the form of an elixir, powder or tablets, is a therapeutic absurdity. Even if fresh specimens of the powder, possessing slight tryptic activity, have any advantage over old ones, there is no way of telling which the patient is likely to get, for the trade packages of Lactopeptine are undated. In liquid preparations like Elixir Lactopeptine, pepsin and pancreatin destroy each other. (Jour. A. M. A., Oct. 23, 1915, p. 1466).

The N. F. Imitation of Elixir Lactopeptine.—Nearly forty years ago the essential worth-

lessness of Lactopopetine was brought to the attention of the pharmaceutical profession. In spite of this knowledge the pharmacists have included imitations of Lactopeptine and Elixir Lactopeptine in the National Formulary under the titles Compound Powder of Pepsin and Compound Digestive Elixir. The N. A. R. D. Journal, devoted to the business rather than the professional side of pharmacy, defends the Compound Digestive Elixir on the ground that "physicians keep right on prescribing it." The pharmaceutical profession should consider that pharmacists will in the end lose the confidence of the medical profession and the public by the tolerance of worthless pharmaceuticals. (Jour. A. M. A. Oct. 23, 1915, p. 147).

Cardui, the Story of a Nostrum.—Harper's Weekly (October 23) traces the growth of the Wine of Cardui business. The author, stated to have been employed by the manufacturers denies that the nostrum will perform the many wonders claimed for it by the manufacturers, and says that there is one miracle that Cardui can perform—it can make money (Jour., A. M. A., Oct. 23, 1915, p. 1466).

Camphor, Natural and Synthetic.—Though having the same chemical composition, natural camphor is levorotatory while synthetic is optically inactive, it being a mixture of levorotatory and dextrorotatory molecules. Synthetic camphor, used externally and in moderate doses internally, has been reported to have the same effects as natural camphor. The evidence is, however, unsatisfactory. The natural product being readily obtainable there is no warrant for the therapeutic use of synthetic camphor until more conclusive evidence is at hand. (Jour. A. M. A., Oct. 30 1915, p. 1555).

NEW AND NONOFFICIAL REMEDIES.

During October the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

Mallinckrodt Chemical Works:

Betanaphthyl Salicylate, M. C. W. Merck and Co.:

Bethol

Bismuth Tribromphenate, Merck.

Buthylchloral Hydrate, Merck.

Ethyl Bromide, Merck.

Homatropine Hydrochloride, Merck.

Sodium Cacodylate, Merck.

H. K. Mulford Co.:

Hay Fever Vaccine, Mulford: 4 syringe packages 0.0025 mg., 0.005 mg., 0.01 mg. and 0.02 mg.) and 1 syringe packages (0.02 mg).

Merck and Co.:

The Council has recognized Merck and Co. as selling agent for the products of Knoll and Co., described in New and Non-official Remedies.

The Council has also recognized Merck and Co. as selling agent for Kelene.

Heyden Chemical Works:

Betol: Having been advised by the Heyden Chemical Works that Betol is no longer offered for sale the Council voted that it be omitted from New and Nonofficial Remedies.

Yours truly,

W. A. PUCKNER,

Secretary

Council on Pharmacy and Chemistry.

Since the publication of New and Nonofficial Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies:"

Mercurialized Serum, Mulford.—A solution of mercuric chloride in normal horse serum diluted with physiologic sodium chloride solution. It is proposed for the treatment of syphilis, particularly the cerebrospinal type. It is supplied as:

Mercurialized Serum, Mulford, No. 1.—One 30 Cc. ampule containing the equivalent of 1.3 mg. 1-50 gr. mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 2.—One 30 Cc. ampule containing the equivalent of 2.6 mg., 1.35 gr. of mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 3.—A package of ten 30 Cc. ampules each containing the equivalent of 1.3 mg. (1-50 gr.) of mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 4.—A package of ten 30 Cc. ampules each represent-

ing 2.6 mg. 1-25 gr. mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 5.—8 Cc. mercurialized serum, Mulford, containing the equivalent of 22 mg. (1.3 gr.) of mercuric chloride in a syringe graduated in fourths, with needle.

Mercurialized Serum, Mulford, No. 6.—A package of ten syringes, each containing 8 Cc. liquid which represents 22 mg. 1.3 gr. of mercuric chloride. H. K. Mulford Company, Philadelphia, Pa. (Jour. A. M. A., Oct. 2, 1915, p. 1185).

Radio-Rem, Outfit No. 4.—An apparatus designed for the production of radio-active drinking water by the action of radium sulphate contained in terra cotta plates. It consists of two plates contained in 250 Cc bottles; when the bottles are filled with water the two plates impart about 1.8 microcurie 5000 Mache Units) to the water in twenty-four hours. For action, uses and dosage refer to the article on radium in New and Nonofficial Remedies. Schieffelin and Co., New York. (Jour. A. M. A., Oct. 9, 1915, p. 1281).

Histamine Hydrochloride.—The hydrochloride of the base beta-iminazolyethylamine (histamine). It is a valuable reagent for the standardization of pituitary preparations.

Imido, Roche.—A name applied to histamine hydrochlorid.

Ampules Imido, Roche.—Each ampule contains 1.1 Cc. of an aqueous 1 in 1000 solution of Imido, Roche (1 Cc. contains 1 mg.). Hoffmann-LaRoche Chemical Works, New York City. (Jour. A. M. A., Oct. 16, 1915, p. 1367).

Betanaphthyl Salicylate.—The salicylic acid ester of betanaphthol. It passes the stomach unchanged, but is split into its constituents in the intestinal tract. It is believed to act as an intestinal antiseptic and to act in a similar way in the bladder. It is said to be useful in intestinal fermentation, catarrh of the bladder, rheumatism, etc. Mallinckrodt Chemical Works, St. Louis, Mo. Jour. A. M. A. Oct. 30, 1915, p. 1553).

Betol.—A name applied to Betanaphthyl salicylate (which see). Merck and Co., New York. (Jour. A. M. A., Oct. 30, 1915, p. 1553)

Great things have small beginnings. A spectacle maker, Jan Leippersheim by name,

living in Holland, invented a crude magnifying glass in 1608. Anton von Leuwenhoek, born in Delft, this day, 1632, improved this clumsy toy and evolved a compound microscope which has become the most valuable sanitary tool yet devised by man. That first microscope was as far removed from the high-powered instrument of today as is the modern American from the original caveman. Yet by this faulty means, Leuwenhoek, naturalist, physician and botanist, discovered certain minute bodies which he called "little animals." He made drawings of these and today we know them for those useful friends and malignant enemies of man—bacteria.

We spend our days surrounded by another world, a living world of countless billions, invisible to the naked eye, silent, tireless, destroying the living, consuming the dead, useful in the sciences and arts, yet often followed by a train of sickness, suffering and death. A curious paradox this, yet bacteria are at once the greatest friends and the fiercest foes of every living thing. Not animals, as Leuwenhoek thought, but vegetables, bacteria consist of two classes, those which prey on living things and those which reduce to their original minerals, fluids and gases, every dead thing which they attack. They are of various shapes, round like marbles or straight like little sticks. They grow in clusters, chains, and in pairs. They are ubiquitous. The dusty air, the earth and its waters, the interior of animals and plants all contain them. They cause the fermentation of foods, they make cheese, they produce disease and some of them when killed and injected into an animal protect it against the very disease which they would have produced if living. Many of them live as harmless creatures in the body of an animal for years, only to kill their host when the opportunity presents. Their study has given birth to a science, bacteriology, one of the foundation stones of public health.

Their mere presence does not necessarily produce disease. Recalling the parable of the sower, some bacteria fall by the wayside some fall upon stony places, and some fall in good ground and bring forth the fruit of suffering, perhaps of death. A normal, temperate life, free alike from the gluttony of idleness or overwork, the sound mind in the sound body, a cheerful, normal environment,

these form the stony places in which bacteria take no root. The depraved appetites of mind and body, the dark and sordid atmosphere of penury, the nerve racking and strength undermining trades, these prepare the good ground.

The great weapon against bacteria is cleanliness. The mastery over premature death lies to a great measure in our own hands. Clean persons, clean cities, clean workshops and clean lives are the makers of public health. The United States Public Health Service and other sanitary bodies of this country are gradually bringing these facts home to the general public. In this way cleanliness is becoming more general, and the span of life in America is gradually being lengthened. All of which is largely due to the microscope.

THE RESPONSE OF DIFFERENT RACES TO HOT CLIMATES.

The more recent experiences of white races in the tropics have taught us that the supposed dangers of climate in these parts of the world have been overestimated. The greatest enemies of mankind in the warm countries are not necessarily those associated with climate as such, but rather the group of severe infectious diseases and related insanitary influences to which the inhabitants are unduly exposed. When the foreign resident of the tropics has learned to guard himself against prevalent unhygienic conditions, to adjust his mode of life and his personal hygiene to the obvious requirements of his new environment, and to avoid the misuse of alcohol, which increases enormously the other unfavorable and detrimental influences, he need not suffer seriously by comparison with his relatives in the temperate zones.

There are certain inherent peculiarities of the tropical climate which cannot be avoided. Constant high temperature, frequently combined with high atmospheric humidity, must be combated by even the healthiest person. These factors call forth increased efforts to cool the body, and hence affect the activity of the skin, lungs and circulatory apparatus. The results of this increased performance are exhibited by fatigue on slight exertion and decreased nervous and muscular efficiency. In Calcutta the temperature ranges from 18 C. (64.4 F.) to 28 C. (82.4 F.); in Batavia it

averages 26 C. (78.8 F.) in Sierra Leone, 27 C. (80.6 F.); and temperatures as high as 50 C (122 F.) in the shade are not infrequent in parts of India. To these influences may be added the more problematic effect of light, which is exaggerated by the high position of the sun and the consequent directness of the rays.

The colonization of the warm countries by inhabitants of the cooler zones has repeatedly raised questions as to the fitness of the white races for life in the tropics. There is a reasonable agreement that the black races tolerate the hotter climates more successfully. At any rate, they can apparently engage in physical exertion under tropical conditions with less distress than is experienced by the unacclimated white races. Are there physiologic reasons for this unlike response to extreme climatic conditions?

He who embarks on the discussion of the effects of tropical light is likely to enter a sea of controversy. The most conspicuous difference between the white races and the natives of the tropics lies in the pigmentation of the skin. Sunlight is admittedly a stimulus to the development of pigment, unless the exposure is so severe as to lead to sunburn. Dr. Stigler of the physiologic institute at the University in Vienna has sought to locate the cause for the admitted superior tolerance of the black races to excessive heat, particularly under conditions of vigorous exercise. He has observed that, so long as the loss of heat is unobstructed, the body temperature of the negro shows a slighter rise during work at high external temperatures than does that of the white man; furthermore, the "heated" negro cools to the normal more promptly than does the white man.

Stigler's investigations, according to The Journal of the American Medical Association, are based on rather meager data. If they become further substantiated, it will probably be found that the superior temperature regulation of the negroes is an acquired characteristic developed by use. From this point of view, one may perhaps expect healthy white persons likewise to endure the tropical heat more effectively in the course of time. At present other hygienic factors still complicate the interpretation of the welfare of white races in the warm climates.

DANGER IN SUN BATHS.

The Journal of the American Medical Association again calls attention to the dangerous influence of prolonged exposure of the body to the bright sunlight in those who have not been accustomed to its rays. Grawitz called attention to this danger some years ago. Romer says that lying on the sand for hours in the sun has become such a popular pastime that at a single one of the Hamburg resorts there were 18,000 taking the sun bath one Sunday. The damage is more than the sunburn resulting, as he shows by two cases reported in detail, in which headache and symptoms of meningitis developed after the youths had been lying several hours in the sunlight with unprotected head and no clothing but bathing trunks. Spinal puncture confirmed the assumption of meningitis and relieved the headache. The sun's ray had evidently penetrated the skull, he says, thus demonstrating that sunstroke is the consequence of direct exposure to the sun. Grawitz warned that those inclined to be nervous were particularly predisposed to injury of the nervous system from this cause, and Romer adds that it is the anemic and nervously predisposed city indoor workers with whom these sun baths are most popular. A tanned and vascular skin is said to protect better against injury from the sun's rays, but the city dweller's skin is neither pigmented nor vascular. Instead of being benefited, the nervous are rendered more nervous, and when the summer is over they are tanned but otherwise in poorer condition than in the spring. No one welcomes more than the physician the "back to Nature" tendency of recent years, but it is his task to warn against excesses and abuses in the "enjoyment of Nature." Even Rollier, the most expert and most successful adherent of heliotherapy, manages the exposures to the sun light with extreme care, exposing only slowly and gradually larger and larger areas of the body to the sunshine. Dorno relates that "at Davos the direct sunlight is avoided almost as something inimical." Romer remarks that the physician will only in rare instances be able to influence this popular "sun baths sport," but he can at least raise a voice of warning of the dangers of sun baths, and urge the necessity for proper dosage, some persons being more sensitive to the sun's rays than others.

Book Review

Progressive Medicine, a quarterly digest of advances, discoveries and improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., assisted by Leighton A. Appleman, M. D. Volume III, September, 1915. Diseases of the Throat and its viscera, including the heart, lungs and bloodvessels. Dermatology and Syphilis. Obstetrics. Diseases of the Nervous System. Lea and Febiger, Philadelphia and New York. 1915.

Under the diseases of the throat by William Ewart, we get our first data relative to the European war. This is followed by the usual digest of the literature having appeared since the last corresponding edition covering this subject. A very interesting section is given on the control of infections and antiseptics, embracing the review of an extensive literature. The functions of respiration, and of the blood circulation are reviewed in separate sections. Considerable space is devoted to the affections of the heart, a very interesting and instructive chapter indeed, with much new material added. The varied organs of the throat receive space commensurate with the literature that has appeared during the last year. Dermatology and Syphilis is edited by Dr. William S. Gottheil. A considerable amount of new material is to be found in this chapter. There are some very interesting illustrations illuminating the text. The division on syphilis is unusually interesting and instructive. Especially is this true of the treatment, the arrangement is serially, in questions and answers, compiled from the text of four recent papers dealing with the more general aspect of the malady. Obstetrics, by Dr. Edward P. Davis. A large portion of this chapter is devoted to the pregnant state, with special attention devoted to the material appearing, dealing with the various tests for diagnosing this condition. The varied conditions associated with pregnancy, its complications, all receive ample mention, with some very interesting paragraphs upon tubal pregnancy. Abortion; eclampsia; the placenta; labor; the puerperal period; are all ably reviewed, and are particularly interest-

ing. The chapter closes with the review of obstetrical surgery; then the newborn. Two very interesting as well as extensive reviews Dr. William G. Spiller has given us an excellent chapter upon the diseases of the nervous system. Many are the subjects treated, with the mention of the journalistic reviews. Syphilis as it relates to the brain and nervous system receives considerable space and mention. The spinal cord has been the subject of several very interesting papers, which have been excerpted for this chapter. The volume as usual, is a most useful review, and abstract of all the advanced and best literature bearing upon the subjects to which the issue has been devoted, and is a valuable assistance to the busy practitioner, and also to the one with a limited reference library at his command. In either instance the best is at hand, and in a concise form, which gives the essence as chosen by the expert editor, and it relieves him of the arduous task of reading all of the data himself, from which the volume has been compiled. The index is well compiled, and one can easily find any reference to whatever topic of which he is in search.

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NERVOUS AND MENTAL DISEASES.

The new (8th) Edition.

Nervous and Mental Diseases. By Archibald Church, M. D., Professor of Nervous and Mental Diseases in Northwestern University Medical School, Chicago; and Frederick Peterson, M. D., formerly Professor of Phychiatry, Columbia University. Eighth edition, revised. Octavo volume of 940 pages, with 330 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$5.00 net; Half Morocco, \$6.50 net.

The very great popularity which this work enjoys is manifested in an 8th edition. This work is a condensation of two great subjects, neurology, and psychiatry, within the limits of a single volume, and is not the joint work of the writers. The department of neurology is written by Dr. Church, and that of psychiatry by Dr. Peterson. This arrangement of placing these related sciences together makes a most convenient volume for the reader. Among the important changes to be found in the work are: Vertigo and its labyrinthine relations, as developed by Barány is carefully considered under the discussion of the diseases

of the vestibular portion of the 8th nerve. Much new material has been added to the section on Infantile Paralysis. Because of the recent epoch making discoveries in syphilis of the nervous system, this subject has been brought up to date. Many references throughout the work to recent investigations of the spinal fluid; the relations of the spinal fluid changes to the various diseases of the brain and spinal cord, are to be found. The relationship of glands of internal secretion to nervous disorders has been added to bring the data down to date. Tetany has been placed definitely in nervous disorders associated with glandular disorders. The work is well illustrated and written in a style easily read and not tiresome to follow. The index is well compiled and occupies 29 full pages, and the arrangement is such as to assist one to find readily such topics or data as he wishes promptly and with a minimum of effort.

T. C. S.

PRINCIPLES AND PRACTICE OF OBSTETRICS.

New (2nd) Edition, Thoroughly Revised.

Principles and Practice of Obstetrics. By Joseph B. De Lee, A. M., M. D. Professor of Obstetrics at the Northwestern University Medical School. Second edition, thoroughly revised. Large octavo of 1087 pages, with 938 illustrations, 175 of them in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$8.00 net; Half Morocco, \$9.50 net.

The second edition of De Lee's Obstetrics following so soon after the first is tribute to the worth of the book to the general practitioner.

Much new material and a number of new illustrations have been added. Several chapters have been notably added to, among them being that on "Twilight Sleep," concerning which the author concludes that its "generalized re-employment will result in a repetition of the fetal and maternal mortalities and morbidity of twelve years ago."

DIARRHEAL, INFLAMMATORY, OBSTRUCTIVE, AND PARASITIC DISEASES OF THE GASTRO-INTESTINAL TRACT.

Diarrheal, Inflammatory, Obstructive, and Parasitic Diseases of the Gastro-Intestinal

Tract. By Samuel G. Gant, M. D., LL. D. Professor of Diseases of the Colon, Sigmoid Flexure, Rectum, and Anus at the New York Post-Graduate Medical School and Hospital. Octavo of 604 pages, 181 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth \$3.00 net; Half Morocco \$7.50 net.

This is a companion volume to the work on Constipation and Intestinal Obstruction by the same author.

The book is a most complete discussion of its subject and covers the "Etiology, pathology, symptoms, diagnosis and treatment of acute and chronic diarrhoea and allied affections, as well as diseases consequent upon gastrointestinal parasites," and no physician's library should be without its copy.

FRACTURES AND DISLOCATIONS, DIAGNOSIS AND TREATMENT.

By Miller E. Preston, A. B., M. D., Denver, Colorado: with a chapter on Roentgenology by H. G. Stover, M. D., Denver, Colorado. \$60 illustrations. St. Louis, Missouri: C. V. Mosby Company, \$6.50 net.

This is a most excellent practical work on the subject of fractures and dislocations. The author has abandoned the time honored classification of fractures under one heading and dislocations under another and considers the injuries according to the region in which they occur.

The book is rich in illustrations and is said to contain more illustrations of recent fractures and dislocations than can be found in any other English book on this subject. Some of the illustrations are made from photographs taken not more than fifteen minutes after the occurrence of the injury.

Dr. Abbe's work on Autogenous Bone Graft is given—a feature of the book.

ALVEOLODENTAL PYORRHEA.

Alveolodental Pyorrhea. By Charles C. Bass, M. D., Professor of Experimental Medicine and Foster M. Johns, M. D., Instructor in the Laboratories of Clinical Medicine at the Tulane University Medical College, New Orleans, La. Octavo volume of 167 pages, with 42 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth \$2.50 net.

Bass and Johns have prepared a most ac-

ceptable monograph on Pyorrhea from the viewpoint of those who believe that the endamoeba buccalis is the specific causative agent.

While the profession as a whole is not yet ready to accept the views as expressed in this book and while the last word on pyorrhea is yet to be spoken a most excellent case, from their point of view, is made out in favor of their theory.

The work is clear and concise, the illustrations excellent.

In view of the widespread discussion on this subject no practitioner can afford to be without the information that can be found in this monograph, be he believer in the theory or not.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS.

Third Edition, Thoroughly Revised.

Diseases of the Skin and the Eruptive Fevers. By Jay Frank Schamberg, M. D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Third edition, revised. Octavo of 585 pages, 248 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$3.00 net.

When a book has reached a third edition it has evidently come to stay.

A thorough revision has been accorded this monograph and much new material added. The advances in dermatology since the publication of the second edition have made this revision necessary.

A chapter on Luetin Test in Syphilis has been added while the chapter on the Therapy of Syphilis has been rewritten to conform to present day ideas and valuations of the various methods of treatment.

OF LABORATORY INTERPRETATION REPORTS

FRANZ H. HARMS, M. D.

Pathologist of the National Pathological Laboratory, Chicago.

There is a tendency to diagnose a nephritis ipso facto when the laboratory findings show the presence of albumin, and the severity of the condition is gaged by the percentage of albumin present. The object of this article is to emphasize the errors in these hasty conclusions.

It is necessary at the outset to exclude false or accidental albuminuria due to admixture of the albuminous exudate, blood or lymph through the urinary tract, by examination microscopically of the sediment and also by consideration of the clinical picture. After a false or accidental albuminuria has been excluded, there are still the renal albuminurias without anatomic lesions of the kidneys which must be ruled out. These are classified by Saxe as: (1) functional albuminuria: (a) after severe muscular exertion, (b) after eating an excess of proteid food, (c) following nervous shock and other vasomotor changes, (d) during labor, (e) in nervous children; (2) essential albuminuria: (a) cyclic, (b) orthostatic or postural, (c) albuminuria minima (Leroche and Talamom) after infections or debilitating disease; (3) traumatic albuminuria, slight injury to kidney, massage of kidney, movable kidneys, injury to brain, apoplexy; (4) hematogenous albuminuria, such as severe anemia; purpura, scurvy, cholemia, diabetes, leukemia, severe wasting diseases and after anesthetics; (5) nervous albuminuria, insanity, mental depression, psychoses, paralysis of certain parts of brain, epilepsy, delirium tremens; (6) albuminuria of renal stasis in conditions of passive congestion; cardiac, pulmonary and hepatic diseases in the presence of mechanical pressure (stones, tumors) may occur with casts and usually a few red blood cells; (7) toxic albuminuria, irritants (cantharides turpentine), poisoning with arsenic, mercury, phosphorus, lead, antimony, alcohol, mineral, acids, febrile diseases.

In many of these functional disturbances casts may be found.

Only when these are ruled out and when the urine shows albumin and casts repeatedly and there are clinical symptoms as well, can a positive diagnosis of nephritis be made.

The amount of albumin varies usually with the type of disease. In acute cases it is large in amount, becoming variable as it becomes chronic and small in amount in severe cases of contracted kidney. Exceptionally, however, the amount may be large when there is no kidney lesion at all, as in passive congestion, and on the other hand, albumin may be entirely absent at times in interstitial nephritis.—From Journal Missouri State Medical Association.

FRANK S. BETZ COMPANY EXPAND.

Considerable interest has been aroused in professional and trade circles by the rumor of changes in the personnel of the Frank S. Betz Co., of Hammond, Indiana. These rumors have been definitely confirmed by members of the Company. Mr. Frank S. Betz, who hitherto has been virtually the sole head of this large business, has felt the need of active assistance in the management of the affairs of the concern, and especially to carry out plan of extension along the many lines in which the company is interested. As a result, a coterie of business men, including many high in the financial and business world, have purchased a large interest in the company; and extensive plans are being formulated for the general extension of the business in every branch. Mr. Betz naturally remains with the company as president and chairman of the board of directors. The changes will not affect the policy of the concern as to its methods of manufacturing and selling goods, but the infusion of new blood will mean greater activities and further extensions in every way.

The growth of the Frank S. Betz Co. is another illustration of the remarkable success that can be achieved by a man of untiring energy and devotion to his work. He has built up this large business practically unaided, without the assistance of outside capital or borrowed money. It really represents the earnings on his original investment.

The new members of the firm are fortunate

to align themselves with an established business house that has never carried a dollar of indebtedness except current bills for merchandise. With such a reputation for financial integrity, the plans of the new management seem assured of success.

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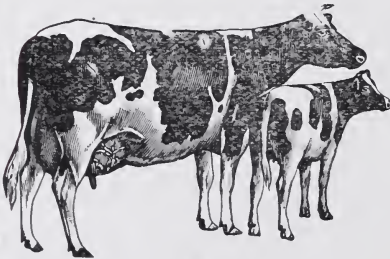
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BUREAU OF CHARITIES AND CORRECTION MEETING

Announcement has been made of business and local committees of the forty-third National Conference of Charities and Correction, which is to be held at Indianapolis, May 10-17, 1916. One of the most interesting committees is that on Change of Name, for it has been advocated by some members that a title be selected which more truly indicates the nature of the body, which is the national union of social workers. In preparation for the reception of the Conference at Indianapolis committees have been organized throughout the state for the purpose of making a great exhibit of the progress of Indiana in matters of social welfare during the past one hundred years, as the centennial of her admission to the Union will be celebrated in 1916. Organized social work, both public and private, has been growing by leaps and bounds in this central region, and it has been thought that the record of attendance at the last National Conference (2600) may be more than equalled.

The president, Dr. Francis H. Gavisk, of Indianapolis, has had more than thirty years' experience in social service in that city, and occupies a unique position in that he is the first Catholic clergyman ever to preside over this Conference. The last issue of the Bulletin

of the Conference is devoted to a review of social legislation during the year 1915. Nearly 500 measures are described and classified, varying in character from the authorization of women police in New Jersey to the establishment of suspended sentences for wife deserters in Hawaii.

NEW LICENSES

The following licenses were granted by the Board of Medical Examiners at the meeting July 12, 1915:

Upon Credentials—

Dr. M. T. McDowell, Louisville Medical College.

Dr. Edward J. Murray, University of Colorado.

Dr. D. H. Bell, Washington University, St. Louis, Mo.

Dr. Phillip Rosenblum, Northwestern University, Chicago.

Dr. Claud S. Guthrie, University of Colorado.

Dr. Henry D. Jew, University of Pittsburg.

Dr. James C. Collins, Atlanta Medical College.

Dr. J. M. Becker, Kansas Medical College, Topeka.

Dr. O. L. Wingate, Jefferson Medical College.

Dr. W. J. Lee, Kentucky School of Medicine.

Dr. W. A. Lang, Miguel University, Toronto, Canada.

Dr. E. H. Bruns, Miami Medical College, Ohio.

By reciprocity with Oklahoma—

Dr. O. E. Puckett, Memphis Hospital Medical College.

(Report received by this Journal, November 8th, 1915).

Original Articles

TREATMENT OF PULMONARY HEMORRHAGE.

A. G. SHORTLE, M. D.
Albuquerque, N. M.

Read before the joint meeting of the 34th Annual Session of the New Mexico Medical Society and the 4th Annual Session of the New Mexico Society for the Study and Prevention of Tuberculosis, East Las Vegas, N. M., Sept. 8th 1915.

There are few, if any, of the so-called cureable diseases that are so unsatisfactory to treat as tuberculosis of the lungs. The good to be obtained from the administration of drugs is so slight, if any, that it is impossible to put it on a statistical basis and the most that we can say of any medicinal remedy is that we have an impression that it is beneficial.

Of the several symptoms of the disease there is probably not one less amenable to treatment than pulmonary hemorrhage; but just as we find that rest, a suitable diet, cer-

tain climates and some surgical procedures, together with symptomatic treatment, results in a fair percentage of cures in otherwise hopeless cases of consumption, so in the treatment of this one symptom a great deal may be done by the proper attention to detail in treatment, for while there is little we can do, the balance is so even in many cases that this small help is many times enough to save the life of the patient, and what is even more important, for there are few cases that die from the immediate effects of the hemorrhage, we may avoid the remote effects of pneumonia and spread of the pulmonary involvement that so often follows hemoptysis.

There appears to be quite as much to be said about what should not be done in the treatment of this condition as in the consideration of what should be done, judging from what one sees in practice and even reads in recognized text books.

Glaring examples of this that I have personally seen is the administration of tuberculin at this time; (in one case it was begun with the intention of curing the hemorrhage).

A not uncommon procedure is to take the pillows from under the head of a patient who is in the recumbent position and then to place bricks under the foot of the bed, a procedure not without value in the ensanguinated patient, who is suffering from cerebral anemia, but one that

is harmful to the ordinary case of pulmonary hemorrhage through first its discomfort and second its raising of the pulmonary blood pressure.

Giving large doses of cathartic pills, which contain strychnia or other drugs capable of raising the blood pressure is not an uncommon mistake.

There has been such a multitude of remedies proposed for this symptom that it would be impossible to review even the majority of them and it is the purpose of this paper to simply consider briefly the claims of the remedies now most in use or generally recommended.

That there is excuse for the diverse and antagonistic methods of treatment adopted by the members of our profession is quickly proved by consulting a number of our text books on internal medicine. Taking up some of the remedies that are quite generally used and that are recommended in some of the standard text books it will be found that there are a number whose value may be questioned, if indeed, they are not actually harmful. Adrenalin is recommended by Klebs (1) and Forcheimer (2) but condemned by Lawrason Brown (3). Forcheimer (2) also recommends ergot, which Osler (4) condemns. When it is remembered that adrenalin is a strong heart stimulant and that it is not at all certain that vaso-motor nerves go to the lungs it appears

that the use of this drug could certainly do no good and might do actual damage. Plumier (5), Dixon (6), and Wiggers (7) are agreed after careful animal experimentation with ergot that this vaso constrictor could hardly result in anything but harm if administered in hemoptysis, and the same conclusion would certainly apply to adrenalin.

Digitalis, a drug much used, was shown by Plumier (5) and later by Wiggers (7) to *always* raise the pulmonary blood pressure. The nitrates is another widely used drug in the effort to lower blood pressure. Wiggers' (7) experiments would go to prove that they also raise the pulmonary pressure through the systemic pressure is lowered.

Our false hopes in the value of these medicines probably lie in our overlooking the complex factors that enter into blood pressure control. The body has many ways of effecting or attempting compensation when the blood pressure is lowered and as pointed out, the pulmonary pressure may be high when the systemic pressure is low. It is also well known that the effect of a given drug on a normal animal may be quite different on a bleeding animal. Showing the ability of the body to maintain a normal blood pressure under unusual circumstances Hewlett (8) says that the circulation in one-half to three-fourths of the lungs may be stopped by ligature without materially raising the pres-

sure in the remaining open arteries or affecting the systemic blood pressure.

Of the newer remedies Emetine is now one of the most widely used. Flaudin (9) noting the prompt disappearance of blood from the stools in cases of amoebic dysentery treated by hypodermic injections of emetine, was prompted to try it in hemoptysis with asserted excellent results. Nicola (10) used emetine in 21 cases and his results appear to indicate that good can only be counted upon when the bleeding occurs in the early stages of tuberculosis and the loss of blood slight, or when the pressure is high and the vaso-motor system unstable. Dupont and Troisiers (11) report excellent results in three cases of gun shot wounds of thorax treated by emetine. Chaufford (12) claims remarkable results with it in doses that do not nauseate or reduce the blood pressure. We have used it in a number of cases but can note nothing remarkable about it except the price.

Along the lines of serum therapy defibrinated horse serum and that of some other animals, including the human, have been rather widely used. Our experience has been limited to the horse serum and to a type put out in powdered forms, and it is one remedy that we feel fairly certain has some therapeutic value.

Riedl (13) claims good results in using the extract of blood platelets. Miliani (14) claims rather remarkable results from the injection of

defibrinated exudates occurring in tuberculous pleuritis and peritonitis.

No less a person than Muller (15) claims good results from the intravenous injection of ten to fifteen per cent salt solution. He reports its use in fifty cases with excellent results.

I will here briefly outline the method of treatment we have used for some time at the Albuquerque Sanatorium. I feel fairly certain that there is at least nothing that can produce harm among the means used and I think all of them have at least some value.

A patient having a moderate hemorrhage; we first endeavor to reassure them and get them quieted mentally as well as physically. I request them to make no muscular effort whatsoever. A nurse should hold the sputum cup or a bowl to their mouth and they should be placed in either a recumbent or, what I prefer, a semi-recumbent position, in such a way that there is no muscular effort or strain in maintaining it. They are warned not to speak above a whisper and then only when necessary. The first medicinal measure is the administration of chloroform by inhalation. This not only allays the cough and quiets the patient but as Wiggers (7) has shown is probably our most reliable remedy for lowering the blood pressure. He has demonstrated by animal experimentation that not only the systemic pressure but the pulmonary blood pressure is lowered by this inhalant.

The same author demonstrated in

the same experiments that while pituitary extract increased the systemic blood pressure it lowers the pulmonary pressure, so after the patient is over the actual bleeding I give a hypodermic of the pituitary extract to prolong the lowered pulmonary pressure produced by the chloroform. I some times place an ice bag over the heart, but I confess more with the idea of meeting the expectations of the patient than with any belief in its beneficial effects.

The importance of complete rest is now impressed on the patient and nurse, special mention being made of the importance of not talking or trying to read or even having food that requires chewing. The patient is kept in the recumbent position, or preferably "braced-up" in bed for this lowers the pulmonary blood pressure. They are instructed to get along with as little water as possible, keeping a tooth-pick or straw in their mouth to keep the saliva flowing. A very light and semi-solid diet is given.

Small doses of codeine, just enough to allay cough and nervousness may or may not be given, dependent on whether these symptoms are aggravating or not. I am more and more convinced that morphine is to be avoided as much as possible, for while its primary effects are good it is not better than those of chloroform, while the remote effects of constipation is distinctly bad and the deadening effects on the reflexes may be a factor in the causation of

the pneumonia which so often follows hemorrhage.

We try from the first to keep the bowels rather loose by means of concentrated solutions of magnesium-sulphate, as this is an excellent method of keeping down the blood pressure and at the same time it promotes the elimination of toxins.

For the first four days we usually give calcium-chloride by mouth but for only four days, for after this time it decreases the coagulability of the blood. (16). As a constituent of the diet, gelatin in the form of jellies is used three times a day, for Woods (17) claims that gelatin even after being digested and absorbed has the effects of increasing the coagulability of the blood.

Horse serum or salt solution of ten to fifteen per cent in doses of five C. C. intravenously we use frequently, but before using the former it is well to be sure that horse serum in some form has not been used recently in the individual. By neglecting to inquire regarding this point we produced a most marked and alarming anaphylaxis in a case who had received diphtheria antitoxin six months before.

In the case that resists treatment or which threatens to have a fatal termination artificial pneumothorax will often act most favorably as we have demonstrated a number of times in the last few years.

As described in a recent paper (18), I have on two occasions used venesection with very favorable results in hemoptysis.

This in brief, is a routine treatment that we have found beneficial

as far as our observation can tell us and we again repeat that we think there is at least no question of the safety of any procedure here advised, which is as we have tried to show, more than can be said for many of the remedies much in vogue.

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DISCUSSION

DR. LEONARD FREEMAN, Denver, Colorado: May I say just a word about so interesting a paper? I think that something

should be at least mentioned in regard to the surgical aspect of the question. The hemorrhages that most generally occur from the lung are, of course, to be controlled by medical means. Abroad, last summer, I had very strongly called to my attention, both in France and Germany, some surgical procedures that had been instituted for the purpose of controlling hemorrhage from cavities, particularly those that are not right at the apex of the lung, but situated either anteriorly or posteriorly below the apex. D———, in Paris, under local anesthesia, in these refractory hemorrhages takes out at least two ribs, sometimes three, portions of them several inches in length in front or behind as may be indicated, and with his fingers strips the pleura from the ribs without opening the pleura—it is quite easily done—and then inserts a large bunch of fat, obtained from the gluteal region perhaps or from the thigh, so that it presses in the cavity just as if you took your fist and pressed it in. Results under those circumstances are said to be good not only in controlling the hemorrhage immediately, but also in closure of the cavity afterwards. Zerbuck prefers to use instead of that a ball of paraffin which I saw him employ for the purpose not of stopping hemorrhage, but of closing the cavity. He resected the ribs in the back, with his fingers loosened the pleura, then inserted a ball of paraffin, as large as a peach, perhaps, so as to press the cavity right in.

A number of years ago I suggested a method somewhat similar to these, which I spoke to Zerbuck about, and which he, either because he wished to be very nice and polite or because he really thought it, rather approved of. That was to take out several ribs and then replace the skin by sutures, stuff up a wad of gauze outside over the place where the ribs had been resected, a wad of gauze as big as one's fist, for instance, and over the top of this to put continuous pressure. I maintained this pressure by means of an ordinary spring truss such as one uses for an inguinal rupture, putting the truss in front with its force coming on the gauze, with another pad behind the shoulders, letting the spring of the truss go over the top of the shoulder. That makes continuous pressure

and, as we demonstrated upon several cases, it pushes the whole chest wall right in where the ribs were removed. In one case where I used it you were able to put your fist, almost, into the hole which had been made. That helps to collapse the cavity and I think it has been sufficiently well demonstrated by D———, Zerbuck and others that hemorrhage can be stopped in these refractory cases by collapse of the cavity, even though collapse is not complete. The production of a pneumothorax is a very much better procedure, of course, when it can be done, but unfortunately in many of these cases you cannot do this because of the pleural adhesions which are present.

DR. W. E. KASER, East Las Vegas: The doctor spoke of anaphylaxis in a case that had serum and said this would occur in cases that had had serum before in some form. This would explain the occurrence in my practice of a case, in the last few months, where a man had been given horse serum in the form of coagulose for hemorrhage with good effects and no bad effects. This was repeated perhaps four months later with a marked edema following, an angioneurotic edema. The injection was given in the buttocks and there was an area perhaps a foot across. Edema occurred also in the face, about the lips and nose, in particular. I was at a loss to explain the occurrence, but I see now that it might have been this anaphylaxis.

DR. J. S. CIPES, Albuquerque: The Doctor has stated in his paper that venesection in selected cases was very beneficial. I would like to know, in the first place, how or on what theory he bases the beneficial results of venesection. It seems to me the patient loses sufficient blood and that we would only be trying to take more blood from him by doing venesection. I would like to ask how you select your cases for venesection in the treatment of hemorrhage.

DR. C. E. EDSON, Denver, Colorado: I have had anaphylaxis occur in cases which had not recently had serum. This was very well described a long time ago by Von Ruck. In my experience practically every case to which I have given serum has had it about eight or

nine days after the dose, when one has almost forgotten about giving the serum, a little urticarial rash. It is certainly due to what might be called delayed anaphylaxis and is without any consequence so far as the progress of the patient is concerned.

In regard to the doing of an artificial pneumothorax, I do not know whether other men have had the same experience that I have had or not. I feel perfectly justified in doing an artificial pneumothorax if I have had the patient under observation and know something about the condition of the chest prior to the hemorrhage, but too often those of us who do something of that sort are called after the patient has been bleeding for maybe a day or two, the chest full of rales, and we are a little bit in doubt—at least, I am, often—as to the source of the hemorrhage and there is a chance that you will do your pneumothorax on the wrong side.

I think the treatment outlined by Dr. Shortle is a very conservative one indeed. If I may be allowed to add any experiences of my own, I should say that the rather free purgation is perhaps to be emphasized a trifle more than Dr. Shortle emphasized it, free purgation and rather limited diet.

My experience with horse serum has been a rather varied one. I do not recall now how many times I have given it. I do recall the first case to whom I gave it, a young man who had an absolutely bad family history. Six months before I saw him four of his brothers and sisters had died of pulmonary hemorrhage. He began by hemorrhage and had some sixteen or eighteen in all, and was in very serious condition. That was about five years ago and practically everybody who had had anything to do with the case had despaired of saving the boy's life. We gave him ten c. c. of horse serum and curiously enough the boy has never had a hemorrhage from that time to this. He has now been working for some two or three years and quite oddly enough after the hemorrhage cleared up—he has had absolutely no more—he found the cough disappeared and he proceeded to get well without any trouble. Of course, that gave quite an impetus to the giving of horse serum in our practice, but I must say that since that time I have had not one such good result and in many instances I have seen no

result at all. It is perhaps true that certain cases require that particular stimulus to coagulation, while in other cases the stimulus needed is something else.

DR. A. G. SHORTLE, closing: I will just end the discussion and get to some papers that I am anxious to hear. Dr. Freeman's remarks on the surgical treatment are interest-extremely rare, although occasionally, but as we all know death directly from hemorrhage is extremely rare indeed. It is very seldom that we see a death from hemorrhage from the lungs and when it does come it is usually very, very sudden; it happens so quickly that there would be no time for operation. Out of the few fatal hemorrhages that I can remember in the ten years that I have done this particular work, there have been only two or three that have gone over a period of several days; that is, where the death was due to the hemorrhage of itself. Of course, quite a few have occurred from the sequelae of the hemorrhage, and I can imagine in an occasional case, particularly where we did not have a free pleura, as the Doctor mentions, and could not use pneumothorax, that surgical procedures would be of use.

In regard to Dr. Cipes' question as to the indications for venesection, I will say that the first time that I ever administered venesection it came to me as an inspiration. I had to do something to save a life and I did it, I believe, by that procedure. This young fellow was a case who was receiving pneumothorax. He was not a particularly good case for pneumothorax, but there was nothing else to do; he was going to the bad and we did it as a last resort. The reason that he was not a good case was because he was a very distinctly bilateral case, the uncollapsed lung had quite a bit of trouble and basal trouble, which is always worse than apical trouble when you are using pneumothorax. He had, however, done quite well and gained under the administration of the pneumothorax; but after probably six months, he was having hemorrhage. When I got

there, he was coughing, gasping, expectorating blood, and a quick examination showed me that the hemorrhage was from the uncollapsed lung and coming from the base. The collapsed lung, of course, was tied in a knot, could be of no particular assistance to him, and the blood was welling up from the base of the uncollapsed lung, and he was simply going to drown in his own blood if something were not done. I thought it over rapidly and it occurred to me that about the only way to stop that hemorrhage was, as usually is the case, to bleed enough to lower the blood pressure, and it has been demonstrated in animal experimentation that the loss of a pint of blood, a little at a time, will not lower the blood pressure merely because compensation keeps up with that, but the loss of blood very quickly to the amount of a pint will lower it quite materially. So I immediately made venesection, just on the theory that we must lower his blood pressure quickly, giving the clot a chance to form; and secondly, because if he had to lose this blood, I thought it was better for him to lose it out of the arm than to have it welling up from this one lung that he had to depend upon for his respiration. And it is particularly in that class of cases that I think venesection is beneficial. The second case that I used it in was a case with very advanced process in one lung, large cavity, and about the same condition of the opposing lung, again a basal lesion with hemorrhage occurring from the bottom of his good lung. It also appeared in that case that unless we got the bleeding from some other point he would be drowned in his own blood. I think in that particular class of cases you will find venesection good. Bonnie is the only textbook that I can find where venesection is mentioned as a treatment for hemorrhage, except, of course, years ago when they gave venesection for everything. Bonnie's indication is that in cases that bleed for some time, persistent bleeders that have gone for two or three weeks, in his opinion a sharp bleeding will result in better coagulation and a lowered blood pressure and good results in some of these cases.

TYPES OF PULMONARY TUBERCULOSIS WHEREIN ONLY MUCH GRANULES OCCUR IN THE SPUTUM

RALPH C. MATSON, M. D.
Portland, Oregon.

Read before the joint meeting of the 34th Annual Session of the New Mexico Medical Society and the 4th Annual Session of the New Mexico Society for the Study and Prevention of Tuberculosis, East Las Vegas, N. M., Sept. 8th, 1915.

In the course of an investigation (1) of the comparative value of some of the modern methods of sputum examination for tubercle bacilli of the Ziehl and Much types, certain forms of pulmonary tuberculosis were brought to our attention, which were not usually recognized as such, but the tuberculous nature of which was impressed upon the mind of my collaborator, Dr. Wilhelm Neumann, Assistant in Neusser Clinic, Vierra, during his many years of careful study of tuberculosis. At the time of our first publication (2) calling to these forms of tuberculosis, practically nothing, relating to these types had appeared in modern text-books on tuberculosis or general medicine. The French authors Bard (3) and Piery (4) described the forms of disease we had observed as manifestations of tuberculous infection; their findings, however, were chiefly deduced clinically and through comparison with autopsy findings, and asserted that the demonstration of the bacillus always, or nearly always, failed. Also, Bander

and Roepke, (5) in the second edition, stated they had observed Much granules in the sputum where Ziehl forms could not be demonstrated, and that these cases showing only Much granules, justified a favorable prognosis.

Not only have we made further confirmatory observations, but during the past two years several contributions on the subject have appeared [Cramer (6), Knoll (7), Ishwara (8)] and brief descriptions of these types of cases are to be found in the recent text-books on tuberculosis. Bandelier and Roepke (9) third Ger. ad. Gerhartz (10), Brauer, Schroeder and Blumenfeld (11), and Riviere (12).

From a pathological standpoint the striking characteristic of these cases is the proliferation of tuberculous tissue and its transition into fibrous tissue with little tendency to softening. As a result of these changes, a secondary contraction takes place, followed by compensatory emphysema with asthmatic symptoms, and dyspnoea which is apt to be very marked. These forms progress usually without fever except when the patient suffers an acute exacerbation. The course is slow, usually progressive, with comparatively little constitutional disturbances, and never leads to cachexia. The appearance of the thorax, although by no means pathognomonic, is nevertheless characteristic; retraction and narrowing of the intercostal spaces, with retarded motion or fixation of the diseased side. Under the fluoroscopic screen the diseased thorax-

half appears diminished and darkened; the sound side is increased in size and shows the typical clearness due to compensatory changes. The diaphragm stands high on the diseased side with diminished lung excursion, displacement of larynx and trachea toward the diseased side, and at times the heart and large vessels.

However, the diagnosis of these cases by physical methods is nearly impossible. In a patient who has suffered with chronic bronchitis, asthma, emphysema or bronchiectasis, it is extremely difficult to say whether a tuberculous process is present or not, for if present, it is usually completely masked by the physical signs of the associated lesion. We have not been able to confirm the alleged value of d'Espines Sign, noted by Stoll (13). The tuberculin test is invariably negative. Therefore, in the recognition of these cases, we must rely chiefly upon the sputum examination; the sputum should be examined not only for Ziehl types but for Much granules. Tubercle bacilli of the Ziehl type, if present, exist in small numbers and are not usually detected by direct smear examination. Concentration methods are necessary. Of these procedures we believe the Ellermann & Erlandsen method superior to the Antiformin.

In a comparative study of 164 cases wherein pulmonary tuberculosis was suspected but no tubercle bacilli demonstrable by direct smear, 14, or 9 per cent, showed Ziehl forms after the Uhlenhuth method, and 22, or 14 per cent, after

the Schulte method; but 36, or 21 per cent, became positive after the Ellermann and Erlandsen procedure. The remaining 128 cases giving negative Ziehl findings were examined for Much granules. These cases comprised:

Group 1. 92 cases of incipient pulmonary tuberculosis without softening.

Group 2. 5 cases acute miliary tuberculosis.

Group 3. 31 cases which clinically presented chiefly the physical signs of chronic bronchitis with emphysema, asthma and bronchiectasis.

In 11 cases, all belonging to Group 3, only Much granules were found. These later cases form the basis for our observations on these forms of pulmonary tuberculosis showing only Much granules in the sputum.

Owing to the difficulty of differentiating Much granules from cell debris and cocci, which remain undissolved after the Ellermann and Erlandsen method, it was modified by utilizing the first part which Jorgensen (14) had already shown equal to the Antiformin method, and instead of a caustic soda solution in the second part, we substituted a weak solution of antiformin sufficiently strong to dissolve cell debris and the bacteria but not injure the granules which our experiments showed largely destroyed by the concentrated solutions of antiformin in the Uhlenhuth and Schulte methods. The best results were obtained by the following technique: Modified Ellermann &

Erlandsen method: One part of sputum, 15-20 c. c., was mixed with one part of .6 Na₂ CO₃, in a stoppered flask and incubated at 37 degrees C. 24 to 48 hours. It was then centrifuged, the overlying fluid poured off, and the sediment mixed with an equal volume of 30 per cent antiformin and allowed to stand 10 to 20 minutes until homogenization was completed, then centrifuged one-half hour, the overlying fluid drawn off and slides prepared from the sediment, and after fixation, stained by the Much Weiss stain. The stain consists of a mixture containing 75 c. c. Ziehl-Neelsen carbol fuchsin and 25 c. c. of a solution of Methyl violet B. N. (10 c. c. saturated alcoholic solution methyl violet B. N. in 100 c. c. 2 per cent carbolie acid water; filter); the mixture must be filtered each time before use, and freshly prepared every 8 days; otherwise, the fuchsin stains too weakly:

1. Stain as with Ziehl-Neelsen, or better, 24-48 hours, at room temperature.

2. Lugol solution 5 minutes, heated in flame until steam arises.

3. 5 per cent nitric acid 1 minute.

4. 3 per cent HCL; a few seconds.

5. Equal parts acetone and alcohol until no more color is given off.

6. Dry with filter paper.

7. Counterstain with Bismark Brown one minute.

8. Wash in water.

9. Dry.

The granula appear black with a pale halo of red; they are easily mistaken for stain precipitation,

cocci, and fragments of cell nuclei. Isolated granules must not be accepted. Only those arranged in rod form or heaps of rods should be considered positive.

It is not within the scope of this paper to go into the details of all our cases. I have selected a few which I think will better illustrate the clinical course of this form of pulmonary tuberculosis, wherein only granules are demonstrable:

Case 1. E. P., female, single, age 21, entered the tuberculosis barrack of the Neusser Klinik for the first time on August 6, 1909. Her mother had died from pneumonia (?) in April of the same year at the age of 54, having suffered 7 years with pulmonary tuberculosis. The patient's father was living and showed no symptoms of tuberculosis. The girl had had measles in childhood. As a school-girl she had suffered from what was termed "catarrh of the lungs." In 1903 a physician had diagnosed a disease of the nose (Ozena) and a bronchitis from which she was confined in a hospital one month. In 1904 she had "inflammation of the lungs," after which the "lung-catarrh" again appeared and from that time on recurred annually at the beginning of the disagreeable weather. Blood was often coughed up though only in small amounts. In 1906 she was in the hospital from July 18 to Nov. 18, suffering from a pleurisy with effusion on the left side. Since that time the sputum, formerly scanty, had increased greatly, sometimes to enormous amounts, and she complained of cough, occasional pains

in the side and night sweats. Her appetite was good. In 1909 she had two severe hemorrhages. She entered the hospital Aug. 6 and remained until July 7, 1910. In August of 1910 she came again and remained until Oct. 3. She was readmitted for the third time on Oct. 24, 1910, remaining until July 8, 1911. She returned again Oct. 4, 1911 and remained until March, 1912. During this year's stay in the hospital she showed a repeated slight elevation of temperature to 100 degrees Fahrenheit, very great quantities of sputum, varying from 50 to 250 c. c. per day. The sputum had a fetid odor and upon standing, separated in 3 layers. The patient was small, cyanotic and had club-shaped fingers.

The lung findings which remained practically constant after the examination on Oct. 10, were as follows: A deepening of the borders of the lungs was evident, and an overlapping absolute heart dullness; light dullness over the right upper lobe in front; behind, dullness on both upper lobes and a slight dullness at the base of the lower left lobe, with fixed border. Over the whole chest there was vesicular breathing with greatly prolonged expiration, sibilant and sonorous rales, with the exception of the upper part in front where a somewhat bronchovesicular breathing was audible. Over the posterior portion were fine, moist, non-resonating rales which appeared especially large over the left lower lobe. Over the base of the left lower lobe behind was a pleuritic rub, which was to be heard only

at times and was accompanied at its onset with a severe pain upon breathing. The tuberculin test was negative. An X-ray examination made by Dr. Haudeck of the Holznecht Rontgen laboratory, showed a peribronchitis in the region of the right lower hilus branches, weaker toward the left. The left lower lobe was less clear, the left diaphragm fixed. Bronchiectatic cavities were not visible on the plate but were suspected because of the diminished size and the irregular dimensions of the right hilus branches.

The bacteriologic examination of the sputum resulted as follows: In the Gram preparation were quantities of Friedlander bacilli and clusters of influenza bacilli, but no tubercle bacilli were discoverable, even with the antiformin method, though repeated tests were made. The inoculation of a guinea-pig with the native sputum on Feb. 9, 1910, was without result. On the following day the animal died of a suppurating peritonitis, in which a pure culture of Friedlander bacilli was found. The sputum was treated with antiformin for one-half hour, and the washed sediment inoculated into another guinea-pig. This animal was killed on April 27, 1910, and showed at post-mortem a greatly enlarged, centrally caseated mesenteric gland, and a tuberculous nodule in the spleen. In the pus, Ziehl forms of tubercle bacilli were demonstrated.

On the basis of these findings our diagnosis at the time the patient left the hospital, Oct. 24, 1910, was as follows: Chronic bronchitis with

cylindrical bronchiectasis through Friedlander infection, apparently on the ground of an old ozena. Secondary sac-formed enlargement of the bronchi, especially in the left lower lobe, following pneumonia, and a fibroid tuberculosis with slightly thickened pleura and emphysema.

If we attempt to classify this clinical picture according to Bard's scheme, so beautifully interpreted by Piery, this case would correspond with his chronic, tuberculous bronchitis with peribronchitis, emphysema and bronchiectasis. In our investigations, however, tubercle bacilli, claimed by Piery to be sparse but present, were lacking. A careful examination of the sputum for tubercle bacilli and their granules, made according to the methods above mentioned, showed with the Schulte antiformin and the modified Ellermann and Erlandsen methods, when stained according to the Gram II and Much-Weiss methods fairly numerous granules.

Case 3. W. P., male, a mason aged 50, who was received at the clinic on Oct. 10, 1911. His father and mother had both died of "pneumonia," each after a long illness. He had lost a sister from pulmonary tuberculosis and two other sisters were already affected. The patient himself had been healthy until his eighteenth year, at that age he had an attack of jaundice lasting a month, with high fever and cough with abundant expectoration. A physician diagnosed a jaundice and "lung affection," prescribing cold compresses on his chest and the ap-

plication of liniment. A year later the patient had articular rheumatism. At 30 he had another "lung affection," this time also with high elevation of temperature, abundant expectoration, pain in the left side and general debility. At 45 he had another attack which was the occasion of his visit to the clinic the first time. For three weeks he had felt stabbing pain below his sternum, beginning in the epigastrium. There was extreme sensitiveness to pressure in this region, the pain, however, had no connection with the digestive system; his appetite was good, and he felt no distaste for food. Besides this pain the patient complained of general weakness, a severe cough with abundant yellowish expectoration, loss of weight and pains in the left side.

During his hospital sojourn, which lasted from Oct. 10 to Oct. 27, 1911, the patient showed absolutely no rise of temperature. There was no evidence of disease of the stomach which upon chemical and radiologic examination was shown to be in a normal condition. Physical examination was as follows: There was a slight dullness with narrowing of the Kronig field of the right upper lobe; a greatly lessened mobility of the bases of both lungs, with stratified Turban dullness; the breathing was a rough inspiration with prolonged expiration over all; fine, non-resonating rales over bases on both sides, extending somewhat higher on the left. Over the upper portion of the sternum was some dullness, probably caused by a dilation of the aorta; decided over-

lapping of the absolute heart dullness.

The X-ray examination showed a small right lung field which was plainly less transparent than the left. The right upper lobe also appeared a little less clear. Hilus shadows were distinct on both sides; left hilus glands were demonstrable; the heart shadow was not enlarged; the aorta was moderately dilated; the conjunctival reaction with the Wolff-Eisner method was wholly negative. The administration of 25 mg. of old tuberculin caused only a slight rise of temperature, a repetition of the dose called forth a slightly stronger reaction. The sputum was repeatedly negative for tubercle bacilli by all methods; but Much granules were positive explaining the nature of the case fully from an etiologic standpoint. Our diagnosis was a diffuse fibroid tuberculosis with emphysema.

Case 4. The findings in this case were similar to those in the one preceding. A. D., a day laborer, 51 years of age, admitted to the barracks Oct. 2, 1911. There was no hereditary trouble. His first illness was at 15 years of age. At that time he suffered from a lupus of the nose which gradually spread over the right cheek, upper lip and right conjunctiva, and was finally healed after seven years of treatment. The patient was then healthy until two years ago when he began to cough, had occasional chills followed by fever, night-sweats and mucous expectoration. For three weeks he had had pain in his back and both

sides of the thorax. He had lost greatly in weight.

The lung findings in this patient, who still seemed fairly well-nourished and whose face was still somewhat scarred from the lupus, were as follows: We observed slight dullness over both upper lobes—most extensive on the right, but more intensive on the left; low standing lung-borders with lessened mobility; a slight Turban dullness zone on the left at the base; and an overlapping of the absolute heart dullness. Above over the upper lobes was sharp, vesicular breathing, harsher toward the left, showing at the left supraclavicular fossae a somewhat broncho-vesicular character. A few fine, moist, non-resonating rales were scattered throughout, taking on an almost crepitating character in the vicinity of the right middle lobe; a pleural rub occurred over the base of the left lower lobe at both inspiration and expiration. Conjunctival reaction was negative. Subcutaneous inoculation of tuberculin became positive only upon the administration of 25 mg. A careful bacteriological examination of the sputum, which was considerable in amount, sometimes as great as 200 c. c. per day, showed only Much granules. Our diagnosis was diffuse fibroid tuberculosis with emphysema.

Case 5. This represents a further advanced case of the same type with beginning cardiac decompensation. The patient, J. H., was a joiner and cabinet-maker, 59 years of age. He was admitted to the clinic the first time May 11, 1911, remaining until June 10, returning

a second time on June 28, being discharged July 29 to go to the Old Peoples' Home. The family history showed no hereditary trouble. At 17 the patient spent some time in a hospital with "inflammation of the lungs." He was healthy after that until his 34th year. From that time on he had a severe cough, annually in the winter months, which gave him no further trouble until 1907, his 55th year. During this winter he suffered so severely from dyspnea, a condition which had occasionally appeared before this time, that he was entirely incapacitated for work. After even a short stretch of 15 to 20 steps he was obliged to stop to regain his breath. The quantity of sputum was increasing and of a mucous character. He was unable to lie down at night. His condition became worse toward morning. Whereas his trouble at first affected him only in winter, it now began to affect him in summer also, which was his chief complaint. The patient was powerfully built, extremely cyanotic and orthopneic, with noticeably barrel-shaped thorax, high thoracic breathing and club-shaped fingers. Physical findings showed a slight dullness over the upper lobes of both lungs; below, to the right, a considerable dullness with inspiratory tugging and without mobility of the borders. In the left behind was a deep standing lung border with fair mobility; in front, overlapping of the heart which was enlarged in every dimension. The breath sounds in the upper part, both in front and behind, had a somewhat broncho-

vesicular character, otherwise vesicular breathing was especially audible everywhere with greatly prolonged expiration; over a dull zone below, to the right, and corresponding, no doubt, to thickened pleura, weak breathing was heard. Over the upper portion of the whole thorax were sibilant and sonorous rales. Everywhere were foci of fine, moist, non-resonating rales which sounded somewhat harsher toward the base of the left lung and at the base of the right middle lobe. The temperature was normal throughout. The sputum was purulent, not forming layers, without odor, from 100 to 150 c. c. in amount. Examination showed only mouth bacteria and a few Gram-positive diplococci. No tubercle bacilli were discovered, even after repeated examinations. The Moro, Pirquet and conjunctival reactions were negative. Subcutaneous tuberculin injections, even in amounts to 25 mg., produced no rise of temperature.

The patient was accordingly dismissed on June 10, 1911, with the following diagnosis: Emphysema pulmonum with rigid thorax without ossification of the costal cartilage, with chronic diffuse bronchitis. An obsolete apical tuberculosis. Pleuritic adhesions on the right. Myocardial degeneration.

When he came the second time we had made our first observations regarding the occurrence of Much granules in such cases, and we accordingly made an examination of his sputum, revealing Much granules. Guinea pigs were inoculated with his patient's sputum, one with

the native sputum and one from the washed sediment after the antiformin method. The animal inoculated with the native sputum on July 14 died Oct. 11, 1911, of a tuberculosis which practically extended over all the internal organs and in which acid-fast bacilli were found. The one inoculated with the antiformin sputum was killed Dec. 20, then perfectly healthy, and showed no trace of tuberculosis. According to Piery's clasification, our diagnosis was fibroid tuberculosis with emphysema in the beginning of the cardiac phase.

Case 8. Mrs. J. von P., a woman of 38. The patient had had "lung trouble" for ten years. She had suffered from a "constant catarrh" with expectoration. The condition of the lungs and the sputum examination, however, had always been pronounced negative. She had spent three summers in succession in Reichenhall without any other diagnosis being made than a bronchitis with some emphysema, the patient always being assured that she had no tuberculosis. For seven years she had had attacks of fever about every two or three months, often running as high as 40 degrees C., lasting only three or four days and unaccountable to the physician. The cough, dyspnea and mucous expectoration were always worse during these attacks. Following an injury to the right knee-joint four years earlier a painful swelling of the joint occurred, lasting a few days and disappearing upon hot applications, recurring and finally becoming

established. A fistula formed, making necessary artificial drainage of the joint which was placed in splint. Later a similar painful swelling appeared in the tendon sheath of the left hand, at first disappearing, then reappearing until it finally developed into a permanent tuberculosis hygroma.

The patient was well nourished, with extreme cyanosis of the face; the lips were blue, cheeks puffy. The fingers were exceptionally club-shaped. Over the upper part of both upper lobes was a fairly intense dullness. The lung borders stood deep. Sibilant and sonorous rales, and moist rales of a non-resonant character were heard over all. No cavities or signs of softening were present. The inoculation with the sputum after antiformin showed a negative result, the guinea-pig when killed two months later showing no trace of tuberculosis. The sputum examination revealed Much granules, thus confirming the tuberculous character of the case, although there would have been little difficulty in recognizing the cause on account of the course and further localizations of the tuberculous processes. Diagnosis, fibroid tuberculosis with emphysema in cardiac phase.

Case No. 9. B. P., a farmer aged 20, admitted Nov. 27, 1911. No tuberculosis had occurred in his family. He had had no diseases of childhood; had always been healthy. Two years previous to his admission he had fractured the right tibia and fibula. His present illness began in

the fall of 1910 with a chill followed by fever as high as 104 degrees F., which rapidly subsided. After this attack of fever came on, an exudate appeared, diagnosed by his physician as postpneumonic but which rapidly absorbed. During November the patient had felt comparatively well but had lost 30 kg. from his illness. In December he gained weight. During the summer of 1911 he felt perfectly well. In November he noticed a severe palpitation, of the heart, especially upon exertion, and severe dyspnea. He consulted a physician who sent him to the hospital.

Upon his admission to the clinic physical examination showed an absolute dullness over the entire right lung with a Grocco triangle and strong downward pressure on the liver; displacement of the heart to left, the apex beat being perceptible in the sixth intercostal space outside of the mammillary line. Above in front and back on the right side was an absolute dullness with tympany, increased vocal fremitus, then a zone of diminished fremitus, until finally no fremitus was perceptible in the lower parts, over which auscultation gave an almost completely negative result. Bronchovesicular breathing was present higher up and above this, over the zone of the increased fremitus, was bronchial breathing without rales. Fine, moist, non-resonating rales were heard in two places, near the angle of the scapula, and at the left from the middle line into the region of the Grocco triangle.

The patient, generally speaking,

was powerfully built and strong, with cyanosis of the face, and distinct nasal breathing. His temperature was entirely afebrile; pulse rate 96; respiration 28. The X-ray examination made by Lr. Luger of the clinic, showed intense darkening of the whole right lung, including the apex. The heart was greatly misplaced and the mediastinum also misplaced toward the left. The left corner of the diaphragm was free. A test puncture, made at once, revealed a yellowish, somewhat turbid fluid with clearly positive Rivalta. A Leishmann stain of the sediment showed lymphocytes and a few erythrocytes. The conjunctival test made with 1 per cent old tuberculin was strongly positive. A test injection of 0.2 mg. of old tuberculin resulted in a distinct reaction. The sputum was fairly abundant; as high as 150 c. c. a day and of a mucous character. No tubercle bacilli were demonstrable with antiformin, but Much granules were found.

Since the symptoms of displacement in this case were very decided and the patient suffered from orthopnea, a paracentesis was undertaken and about 700 c. c. of a yellowish fluid drained out, which had a specific gravity of 1022. The physical condition did not change, but the dyspnea became distinctly less. However, as it soon returned, a new puncture was made two weeks later, and this time 1,400 c. c. of exudate was removed. The heart thereupon returned to its normal position and the patient felt quite well. One month later pleuritic friction appeared on the left side, extending

over the whole left lower lobe to the axilla.

It is certain that this was one of the four post-pleuritic forms of tuberculosis described by Bard. Piery differentiates these as follows: *Pthisis corticalis fibrocaseosa postpleuritica*, *tuberculosis pulmonum corticalis fibrosa postpleuritica cum vel sine pneumonia chronica pleurogeni*, *pleuritis recidivans*, and *pleuropneumonia tuberculosa*. The two last named forms were distinguished at once, for the *pleuritis recidivans* is a mild form of tuberculosis, always running a course of dry pleuritis with repeated exacerbations, whereas the *pleuropneumonia tuberculosa* is an acute form of caseous tuberculosis, running a course with high fever and always ending fatally. Hence only the *phthisis corticalis postpleuritica fibrocaseosa* and *fibrosa* are to be considered. As to the forms, we may apply Piery's description regarding the quantity of exudate, in which he says that the effusion is fairly abundant, and that in spite of this, a noticeable misplacement of the heart with violent dyspnea are present, of such a character that Jossierand and Palasse describe it as pleurisy with pseudo-large effusion.

We saw in our own case that, after drawing off a relatively small amount of 700 plus 1,400 cc., the tremendous misplacement of the neighboring organs was almost completely relieved. At the same time we have, according to the description of the French au-

thors, abundant rales, and in this respect the case corresponds somewhat closely with that which Kohler, describes as lower-lobe tuberculosis. However, our case agrees completely with the postpleuritic fibrocaseous tuberculosis of Piery, and we are the more willing so to classify it since the presence of the Much type of tubercle bacilli harmonizes with our former observations, that this form of bacilli was found exclusively in the fibrous form of the disease. Piery's observations on p. 488 of his work regarding the presence of bacilli in this form of tuberculosis also agrees with ours. This author mentions his numerous investigations in common with Mandoul, in which they were always able to elicit an inoculatory tuberculosis upon guinea-pigs, whereas microscopical examinations had always proved negative.

Case 22. This represents the only case of our series in which Ziehl forms of tubercle bacilli were found at a later date. The case, H. E., a telegrapher, first admitted on May 1, 1911, was a young woman 18 years of age. Her father had died at 59 of dropsy. The mother was still alive and well. Six brothers and sisters died in childhood. Three were still living and healthy. The patient had measles at four; chickenpox at six. At seven she had pneumonia lasting a month. Her first menses appeared at sixteen; they were irregular, sometimes at intervals of only a week and somewhat painful. Her present trouble

dated back to the summer of 1907. At that time she had had a sudden hemoptysis with bright, red, foamy blood in the amount of one-half liter. She coughed up blood for two days, and for several days thereafter the sputum was tinged with blood. She remained in bed for one week, then spent three months in Steiermark. During this time she coughed considerably but the cough later subsided. That winter she was comparatively well. In 1909 she was stationed as telegrapher at a station in lower Austria, remaining a full year. However, her hemoptyses were so frequent that she spent more time at home than at work. Night sweats also appeared. Apart from her hemoptyses the cough was always dry. In October, 1910, she came to Vienna. In November she began to have pain in the side, upon coughing. The cough gradually grew worse, and fluctuation of the temperature became so great that she was brought in an ambulance for treatment. The patient was a delicate girl weighing 53.30 kg.; mucous membrane of a good color, but with very bad, carious teeth. Her morning temperature was normal, but toward evening rose to an average height of $99\frac{1}{2}$ degrees F., sometimes even to 101 degrees F. Her pulse was from 100 to 120, her respiration likewise increased, averaging 36. She was very nervous and was often overcome with hysterical attacks in the clinic, beginning by shrieking and running about in a circle. During these attacks polypnea was present

in a high degree, but associated with a bradycardia of 60.

The physical findings revealed the whole left lung in front somewhat intensely dulled, likewise behind as high as the third thoracic vertebra, corresponding to the border of the upper lobe. A lesser dullness of less than a hand's breadth ran around the base of the left lung accompanied by a bad excursion of the lung border. The right fossae, supra and infrascapular, were dull and a corresponding slight dullness was present in front. A very narrow Turban zone of dullness was at the base of the right lung, with limited movement, though not so great as at the left. Upon auscultation rales were found distributed over the entire front of the left side of the chest, with the exception of the supra-clavicular fossa, where non-resonant, fine, moist rales were perceptible. On the back above at the left were fine, moist and sonorous rales. Over the base of the left lung were sonorous and fine, moist, non-resonating rales. Vesicular breathing was present everywhere, particularly over the right middle and lower lobe, with cogwheel expiration. The quantity of sputum was from 5 to 20 cc. per day. No tubercle bacilli had ever been found by the usual method of examination, although fairly numerous Much granules were found.

The patient left the clinic on July 12. She went to the country for a fortnight and felt fairly well. However, her temperature rose as high as 102 degrees F. She had little cough. The occasional increase of

temperature was preceded by a headache. When she returned to Vienna her condition improved so that she had no more fever. She then went to Pilsen for two weeks where she was fairly well, with no cough or elevation of temperature. Upon her return to Vienna headache again set in with an accompanying temperature of 102.5 degrees F. without nightsweats. Menses absent for three months. She returned to the hospital on account of her fever. During her stay her temperature ran as before, and there was no difference in her pulse, respiration or amount of sputum. She had gained in weight to 55.50 kg. The lung findings were the same. The sputum examination made upon the patient's second admission revealed Much granules as before. However, tubercle bacilli of the Ziehl type were now demonstrable by means of the Ellermann and Erlandsen method and Weichselbaum stain. This was the only time that Ziehl forms had ever been found in this case.

The clinical diagnosis in this case is not so simple. The natural assumption of an ordinary fibrocasseous tuberculosis is contradicted by the lack of any signs of cavitation in spite of the long standing of the disease and the many hemoptyses. We accordingly prefer to believe that this condition should be classed in the group of congestive tuberculosis, a form of tuberculosis accompanied by frequent hemoptyses occurring in the same lobe.

The results of our investigations summed up in Table No. 1 demon-

strate the superiority of the modified Ellermann & Erlandsen method over the other methods of examination of sputum suspected of tubercle bacilli or its granules, for while the 14 examinations of sputum here cited negative by direct smear all showed a positive result with this method, only 8 cases were positive with the Schulte method, and with the Uhlenhuth method only 4 cases were positive. It must therefore follow that an examination in cases where tuberculosis is suspected, is incomplete unless this method is used.

Of the various methods used by us for demonstrating acid-fast types, we give preference to the Weichselbaum stain for demonstrating Much types of tubercle bacilli, the Much-Weiss combination stain proved to be far superior to all the other methods used by us. The Löffler-Giemsa of Michaelides gave the poorest average, we being able to find granules with this method but twice. Somewhat better, but still inferior, was the Gram III method of Much, with which we received a positive result only 4 times. Then follows the Gram II method with 12 positive results; and best of all, the Much-Weiss double stain with a positive result 27 times. The preference given this is largely due to the fact that this stain reveals not only Much types but Ziehl forms, and permits their differentiation, the granules being brought out most distinctly and beautifully. By the simultaneous staining with Gram and with carbol fuchsin, the Ziehl types show

black granules surrounded by a red halo corresponding to the body of the bacillus and therefore easily recognizable. The Much types, however, are shown as black granules arranged as rods or heaps of rods, with only traces of the body visible, but never of the distinct red which characterizes the Ziehl types.

We cannot agree with Bittrolff and Momose (15), who in their publication issued only after the completion of our work, claim that no other form of tubercle bacilli can be demonstrated with the Much method than with the Ziehl. In order to see if a 24-hour carbol-fuchsin impregnation could not reveal Ziehl types in our cases, we undertook subsequent investigations of our available cases, testing with the prolonged Ziehl staining. For instance, this was done in patient 1 of our able, where the pig-inoculation had revealed tubercle bacilli, and where we had been able to discover only Much granules in sputum. However, we could find no red-stained rods. We must, therefore, in opposition to these authors, maintain our standpoint, substantiated also by Krylow (16), that the Gram method modified by Much in certain circumstances, shows a positive result when the Ziehl does not. To have revealed these cases clinically from the great group of other tuberculosis cases, we regard as the chief service of our work.

Contrary to the claims of other investigators that the Much method reveals more tubercle bacilli than the Ziehl method, according to our investigations, such is not the case,

as shown by the following experiment: An old tubercle bacilli culture on glycerine bouillon was killed by heating, filtered and carefully dried, then ground to a fine powder in an agate mortar. Common salt solution was then added, drop by drop, the grinding continued and a thick emulsion obtained, which was then further diluted with common salt solution and standardized according to Wright's vaccine method. The smear showed evenly distributed bacilli, free from clumps. The count showed approximately 2,500 million bacilli per c. c. With the Ziehl stain specimens of this emulsion showed many granules and many fragments of bacilli with varying degrees of acid-fastness. After decolorizing with 30 per cent nitric acid, many bacilli were stained only faintly.

Sputum was collected from cases of chronic bronchitis, emphysema and bronchiectasis, in which our preceding examinations had shown no tubercle bacilli or their granules; the specimen was carefully shaken an hour in a shaking-machine, with glass beads, until no purulent masses were visible and the sputum could be drawn through a small caliber pipette. Five different dilutions of the original emulsion were made.

1. Orig. emulsion, 2500 million bacilli per com.
2. 250 million bacilli per com.
3. 25 million bacilli per com.
4. 2½ million bacilli per com.
5. 250,000 bacilli.

To 245 c. c. of the above-mentioned sputum, 5 c. c. of emulsion No. 5 was added, so that 1 c. c. of sputum contained 5000 bacilli.

TABLE I.

	Sputum Original	Uhlenhuth Antiformine Method						Schulte Antiformine Method						Modif. Ellermann-Erlandren Method		GUINIA-PIG INOCULATION	SPECIFIC REACTION			
	Ziehl-Nielsen Stain	Hermann	Ziehl-Nielsen	Weichselbaum	Hermann	Gram	Gram	Much-Weiss	Löffler-Giemsa	Ziehl-Nielsen	Weichselbaum	Hermann	Gram	Gram	Much-Weiss	Löffler-Giemsa	With Native Sputum	With Washed Antiformin Sediment	Konjunctival reaction with 1 per cent O. T.	Subcutaneous tuberculin reaction
CLINICAL DIAGNOSIS																				
1)	E. P.—Bronchitis chron. tuberc. profunda cum peribronchitide et bronchiect																			
2)	E. J.—Phthisis fibrosa diffusa cum																			
3)	W. P.—Emphysemate																			
4)	A. D.—Emphysemate																			
5)	J. H.—Emphysemate																			
6)	M. B.—Emphysemate																			
7)	E. K.—Phthisis fibrosa densa																			
8)	J. P.—Phthisis fibrosa densa																			
9)	Tuberculosis pulmonum corticalis fibrosa post-pneumonia																			
10.)	J. S.—Phthisis cavernosa stationaria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11)	J. Mc.—Tuberculosis abortiva																			
12)	H. E.—Phthisis fibrocascosa praecipue fibrosa																			
13)	F. L.—Phthisis fibrocascosa praecipue fibrosa																			
14)	J. Mo.—Phthisis fibrocascosa praecipue fibrosa																			

ENUMERATION AFTER NEUMANN-MATSON

NEUMANN-MATSON SCALE

—1 in every 100 fields..... 1—10 bacilli
 —2 in every 10 fields..... 1—10 bacilli
 —3 in every 1 field..... 1—10 bacilli
 —4 in every 1 field..... 10—100 bacilli

This mixture was again carefully shaken with glass beads in the shaking-machine and 50 c. c. of the same removed. From this 50 c. c., smears were made, using 1-10 c. c. on every three slides, which were then smeared in as nearly equal areas as possible by rubbing together, then stained with the Ziehl and Weichselbaum stains. 50 c. c. of the sputum was now divided into five parts of 10 c. c. each and three of the same were treated with 10, 20, and 30 per cent antiformin, the fourth according to the Schulte antiformin method. The fifth portion was again divided into halves, the one half being treated with the Ellermann & Erlandsen method for Ziehl forms; the other according to the modified Ellermann & Erlandsen method for Much types. The Ziehl and Weichselbaum stains were used for the Ziehl types, the Gram II and Much Weiss method for the Much types. Care was taken in examining the sediment, so that an equal amount of sediment was placed on each two slides, which amount was always spread over 2-3 of the surface of the slide. The Gaffky scale was used in counting the bacilli or granules, but in the course of our investigations was replaced with an easier and more applicable scale of our own. In further experiments, sufficient quantity of the tubercle bacillus emulsion was added to give definite concentrations, as shown in Table II. From this it follows that the Weichselbaum and Ziehl give approximately the same result. The findings with Much Weiss stain were

somewhat better than those with the Gram II, not only on account of the number of tubercle bacilli found but especially in regard to the distinctness of their outline. The modified Ellermann & Erlandsen method and the original gave better results than any of the antiformin methods. The distinction is greater when we consider that only half as much sputum was used in the two Ellermann & Erlandsen methods as in the other, excepting the last series, in which an equal amount of sputum was used in all methods of examination.

If we compare the difference between the Ziehl stain and the Much stains in the same dilution and with the same method of concentration, contrary to the sputum findings in our cases it appears that there is no striking advantage in the Much stain. There must therefore have been in the cases examined by us an especial modification of the tubercle bacilli, which did not take the usual stain. There cannot possibly be a difference in acid-fastness, since the Much-Weiss and Gram II methods also depend upon the acid resistance of the granules, for here, also, the differentiation is accomplished under the action of strong acids. Deycke (17) has maintained that the granules represent a form of tubercle bacilli which contain only neutral fat and no free fat acids. The free fatty acids were, according to his theory, the cause of the acid-fastness.

Opposed to this theory are those above mentioned, since acid-fastness serves as a foundation prin-

TABLE II

Experiment	Tubercle-vacilli content of the sputum	10 per cent Anti-formin			20 per cent Anti-formin			30 per cent Anti-formin			Schulte-Anti-formin Method			ELLERMANN-ERLANDSEN ORIGINAL METHOD		Modified Ellermann-Erlandsen Method		
		Ziehl-Neelsen	Weichselbaum	Much-Weiss	Ziehl-Neelsen	Weichselbaum	Gram II	Much-Weiss	Ziehl-Neelsen	Weichselbaum	Gram II	Much-Weiss	Ziehl-Neelsen	Weichselbaum	Gram II	Much-Weiss		
I	5,000	—	—	—	—	—	—	—	—	—	—	g1	—	g1	—	g2		
II	55,000	—	—	—	—	—	—	—	—	—	—	g1	—	g1	—	g2		
III	555,000	g1	g2	—	g4	g5	g2	g3	g3	g3	g3	g3-4	0	g3	g6	g6		
IV	3,055,000	g1-2	g1-2	g1	g3	g4	g5	g6-7	g6	g4	g6-7	g6	g6-7	g5	g7	g7		
V	23,568,000	g4	g4	g7	0	0	g5	g8	g5	g7	g8	g7	g6	g8	g8	g7		
VI	53,658,000	g4	g5-6	g8	0	0	g5	g8	0	g7	g9	g10	g8	g8	g8-9	g10		

ciple in both methods of demonstrating tubercle bacilli. Furthermore, our extraction experiments prove this assumption false. If we extract tubercle bacilli with xylol alcohol, or ether, or even with benzoylchloride, and continue this extraction long enough, we obtain a debris in which neither Ziehl nor Much types can be recognized. If tubercle bacilli are extracted with petrol ether, the extract consisting of neutral fat is absolutely acid-fast and the bacilli are scarcely demonstrable with the Ziehl stain, but the granular element remains perfectly demonstrable with the Much stain. If the acid fats are extracted with ether, the extract is only slightly acid-fast, due to the traces of neutral fat which necessarily leaves.

It seems most probable, according to all this, that the form of tubercle bacilli demonstrable by the Much method alone, represents a microbe the neutral fat of which has suffered from the influence of body substances. The difficulty of demonstration and, indeed, usual absence of tubercle bacilli in the proliferative types of tubercles (young miliary tubercles, skin tubercles, etc.) with its lymphocyte richness, yet constant proof of their presence by animal inoculation and the constant presence of Much granules in this type of tubercle, suggests the presence of a ferment capable of transforming that constituent of tubercle bacilli which gives it its acid-fast properties so that it is no longer demonstrable by the Ziehl method, at the same time not interfering with the granular, albumin-

ous or Gram demonstrable element. One is irresistably drawn to the conclusion that the fat splitting enzyme of lymphocytes described by Bergel (18) bring about this transformation. Wirths (19) has also succeeded in transforming Ziehl forms into Much types by injecting tubercle bacilli into the peritoneal cavity of guinea-pigs; he attributed this loss of Ziehl staining power to the action of enzymes, liberated from lymphocytes, on the fatty capsule of the bacillus.

Our clinical findings of those patients in which only granules were to be discovered, support this theory. If, for a more convenient survey, we take all the various types of disease tabulated by Bard, with the bacilli findings and the result of inoculation, as Piery cites them, and the bacteriological findings which were the result of our researches, we have the following:

We see that in all cases of tuberculosis where caseation had taken place, tubercle bacilli demonstrable with the Ziehl method could be found; that, however, in those cases in which a tendency to caseation was almost or wholly lacking, only Much granules were present.

Regarding the pathological-anatomic data. Inasmuch as we have had no opportunity to see any of our cases post-mortem, we must depend upon Bard and Piery. According to Piery, p. 467, these cases are characterized anatomically by extensive fibrous bands, slaty nodules and connective tissue obliteration of the alveola. Microscopically it is made up of embryonal infiltration,

TABLE III.

CLINICAL FORMS OF TUBERCULOSIS	PIÉRY		NEUMANN-MATSON	
	Bacteriological Findings	Positive Guinea-Pig Findings. Negative Sputum	Ziehl-Neelsen Forms	Bacteriological Findings
	Ziehl Demonstrable T. B. in Sputum			
1. Phthisis fibro-caseosa communis incipiens	Seldom	Frequent Preceding Sputum	Seldom	?
2. Phthisis fibro-caseosa communis confirmata	Abundant		Abundant	
3. Phthisis fibro-caseosa communis disparata	Appear Late		Abundant	
4. Phthisis congestiva			?	?
5. Phthisis corticalis fibro-caseosa post-pleuritica	Few Late		Present	
6. Phthisis ulcero-fibrosa cachecticans			Present	
7. Phthisis cavernosa localisata ulcerosa	Scanty		Present	
8. Phthisis cavernosa localisata stationaria	Scanty		Present	Present Case X
9. Phthisis fibrosa densa	Only When Cascous Are present			Present Case VII—VIII
10. Phthisis fibrosa disseminata cum emphysemate	Absent			Present Case II—VI
11. Pneumonia hyperplastica tuberculosa	?		No Observation	No Observation
12. Tuberculosis fibrosa postpleuritica cum vel sine pneumonia chronica tuberculosa				Present Case IX
13. Tuberculosis pulmonum abortiva		?		Present Case XI
14. Pleuritis recidivans		+		
15. Bronchitis chronica superficialis cum emphysemate		In Fresh Cases Positive	Present	
16. Bronchitis chronica profunda cum peribronchitis et bronchiectasia	Seldom			
17. Tuberculosis latens	Rarely Positive		Present	Present Case I
18. Pneumonia caseosa	Scanty			
19. Pleuropneumonia caseosa	Present		Present	
20. Phthisis galloppans	Abundant		Present	No Observation
21. Bronchopneumonia tuberculosa	Scanty		No Observation	No Observation
22. Bronchitis capillaris tuberculosa	Present		No Observation	No Observation
23. Tuberculosis miliaris generalisata	Usually Absent		Absent	Absent
24. Tuberculosis miliaris benigna	Absent		No Observation	No Observation
25. Typhotuberculose			No Observation	No Observation
26. Tuberculosis miliaris migrans			No Observation	No Observation
27. Tuberculosis miliaris suppurativa			No Observation	No Observation
28. Septicæmia tuberculosa			No Observation	No Observation

connective tissue fibres and a few large giant cells loaded with carbon pigment; no epitheloidal cells and no distinct caseation occurs.

Considering Bergel's demonstration of lipolytic ferments in lymphocytes and that Neumann and Wittgenstein (20) were able to prove that tubercle bacilli in encapsulated tubercles kept at 37 degrees C lose their virulence, as long as no caseation has taken place (which loss of virulence does not occur when caseation has taken place), we are justified in concluding that in all cases where the defensive power of the organism is superior, the neutral fats of the bacillus are split into fatty acid by the lipolytic ferments of lymphocytes and the fatty acid is not stainable, with carbol-fuchsin, at least; the granular element, however, consisting of albumen, remains uninfluenced and is demonstrable with the Much stains. That these tubercle bacilli are nevertheless virulent is proven by our positive animal tests, so far as they were carried out. At the same time one perceives their vulnerability in that they elicit an inoculatory tuberculosis as a rule only with the native sputum, whereas a half-hour's treatment with antiformin is able to do away entirely with the specific action of these mildly virulent tubercle bacilli. (See Table No. 1, Nos. 1, 5, 8, 10).

We may therefore say: When we find acid-fast tubercle bacilli demonstrable according to the Ziehl or Wiechselbaum method in the sputum of a tuberculous patient, we may regard a caseous process in the

lung as highly probable; if we find tubercle bacilli demonstrable only according to Much-Weiss, we may regard the case as one of fibrous circumscribed foci without caseation. The process then appears mild. However, inasmuch as these tubercle bacilli are still virulent in spite of their mildness, as their animal-pathogenicity proves, a special view must be taken of them. Since they occur in masked forms of tuberculosis which do not at first glance appear typical, or show typical physical signs of pulmonary tuberculosis, there is no doubt that these cases showing only Much granules are often not recognized as tuberculous or considered such; therefore no especial care of the sputum is taken either by the patient or his associates and whole families are in this way exposed to a source of infection. It is often wondered why one child after another in a family develops a tuberculous meningitis or pulmonary tuberculosis, while the parents appear perfectly healthy. The grandparents may be very old; may have what is supposed to be a typical old-age emphysema, cough and spit a great deal, but because of their age are not considered tuberculous individuals. A careful sputum examination for Much granules would often reveal the cause very quickly. The apparently innocent emphysema proves then a fibrous phthisis, which cannot harm the carrier but is a source of danger to others, especially children, the more so since the children are often entrusted to the care of the grandparents. In

the interests of an effective tuberculosis-prophylaxis, this form of disease should be sought out in the most energetic manner. A careful bacteriological examination of the sputum should be required in all chronic coughs.

CONCLUSIONS.

1. There are cases of pulmonary tuberculosis in which the usual staining of tubercle bacilli according to Ziehl-Neelsen and Weichselbaum method, even after antiformin, is unsuccessful; but where with the Much method, preferably with the double stain of Much-Weiss, distinct granules can be shown.

2. These cases of tuberculosis are characterized by their mild course, often appearing under the clinical form of a bronchitis with asthma and emphysema, or as a bronchiectasis. These forms are apparently distinguished by the fact that no caseation takes place, since its manifestation appears to be the occurrence of Ziehl-demonstrable tubercle bacilli in the sputum. They embrace the group of phthisis fibrosa in the sense of Bard.

3. The granules in the sputum, while virulent for guinea-pigs, are often incapable of resisting antiformin, and inoculation with the antiformin sediment of such sputa frequently does not elicit inoculatory tuberculosis, whereas the native sputum produces the disease.

4. These forms are for the most part not recognizable by the specific reactions. The subcutaneous tuberculin test and specific conjunctival

reaction are almost always negative.

5. The transformation of Ziehl into Much forms is probably due to the fat-splitting enzymes derived from lymphocytes.

6. The recognition of this form is of eminent practical significance, since if unrecognized, it may form a source of infection in which a tremendous amount of infectious material may be produced without any especial care being taken as to its disposition.

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DISCUSSION.

DR. L. S. PETERS, Albuquerque: In replying to the invitation to read a paper before this Society, Dr. Matson stated that he had a number of subjects that he could present at this time, but that his hobby was Much granules and if we did not think it would be uninteresting he would like to give that, though he feared that people would tire of a subject that was more or less technical and to the average man would be devoid of interest. I asked him, though, to give that subject inasmuch as the majority, I believe, with myself, know very little, if anything, concerning Much's granules. There has been very little written in American literature or English literature on the subject, we have to depend more or less upon the foreign contributions, and it is gratifying to me to be able to listen to the original work done by Dr. Matson and to his digest of the literature on this special phase of tuberculosis. In fact, all that I know concerning Much's gran-

ules, I learned in the perusal of his paper while coming from Albuquerque yesterday afternoon on my way to this meeting, and I feel that I am unable to discuss with understanding a paper of so great scientific import. All that I had gained from what little reference I could find in the English literature was that there was more or less discussion relative to the biology of Much's granules as to whether or not they were typical tubercle bacilli in a degenerative form, as Von Behren claimed, or whether they were simply developmental states of the tubercle bacilli. It does not seem to make any difference just what the nature of these granules may be inasmuch as it has been demonstrated, I believe conclusively now, that they are capable by direct inoculation of producing tuberculosis in animal experimentation. Whether or not they are degenerative forms of tubercle bacilli or developmental forms, or whether they bear the same relation to the tubercle bacillus that other acid-fast organisms, like the lepra bacillus, the pseudo tubercle bacillus, any of the acid-fast forms, makes little difference, and I am grateful to learn that in a great many of these atypical cases of tuberculosis that we see occasionally and in which we are unable to make a positive diagnosis probably if we examined for these Much granules we would reveal their presence and clear up the diagnosis.

Recently there came under my observation a case that I now believe to be one of that nature. The patient came to us in Albuquerque in April of this year from Arizona, with marked dyspnea and cyanosis, vague and indefinite abdominal pains in the region of the stomach and diaphragm, and feeling generally bad. He complained of marked weakness and pressure symptoms in the chest. Upon examination we found that the right chest was filled to the top with fluid and the left lung upon physical examination revealed harsh breathing through the upper part with no evidence of active tuberculosis. There were no rales present. Upon aspiration we took out, I think, at two sittings, some seven pints of a serous fluid which upon culture showed no growth and upon microscopical examination revealed nothing, neither did we get any results upon animal inoculation. The patient was relieved immediately

of his dyspnea and cyanosis and all of the symptoms cleared up and for two months he felt in most excellent condition. We took an X-ray picture before the fluid was withdrawn and the radiograph confirmed the diagnosis physically of a chest full of fluid on the right side and scattered areas, the shadows indicating to us a healed tuberculosis of the left upper lung with peribronchial thickening. The radiograph taken immediately after the withdrawal of the seven pints of fluid—and, by the way, we replaced that with air to keep up the compression inasmuch as we were not aware of the condition in the other lung—showed a complete fibrosis of the compressed lung and it filled about a third of the chest cavity on the right side with a pneumothorax complete in the remainder of the cavity, a small amount of fluid in the base. As I said, the patient made excellent improvement for two months and then developed a natural pneumothorax and pumped himself up and required a relief of the compression every other day. Apparently, the valve of the pneumothorax let the air in and did not let it out. He kept going on from bad to worse and finally cyanosis and dyspnea became so marked that the patient died from what we considered cardiac failure. A post-mortem examination revealed exactly the same findings that we made out upon physical examination and X-ray pictures, a complete fibrosis of the right lung and a scattered healed tuberculosis in the left upper with a large number of tubercles on the surface of the pleura over the upper part of the left lung. The patient's sputum was never examined for Much granules. The previous history, which I should have stated in the beginning, said that he had come to this country 35 years previously, went to Arizona, remained there a few months and was cured of a bronchial catarrh, as it was diagnosed. He then returned to Springfield, Mo., where he practiced the profession of a druggist for five years and then returned to San Antonio, Texas, for a recurrence of this bronchial catarrh. He recovered sufficiently to go back to Missouri again and lived there the remainder of the time until last fall when he came to Arizona again and then in the spring came to us. During all that time, he had never regained his former health. He had been more or less of an invalid all those

years, and in reading over the case reports of Dr. Matson I was very much impressed with the chronicity of this patient corresponding to the chronicity of the case Dr. Matson reports. Judging from what I know now it is probable that had we examined for Much's granules we would have found them and that this was a typical case of chronic fibroid tuberculosis as the result of a Much infection. It gives us an excellent opportunity to clear up the diagnosis of these atypical cases that we see occasionally in our practice.

I want also to thank Dr. Matson for coming clear from Portland, Oregon, to give us a paper such as he has delivered today and to thank him in behalf of the New Mexico Society for the Study and Prevention of Tuberculosis. I bespeak also a most thorough discussion of a most interesting subject.

DR. W. T. MURPHEY, Albuquerque: Dr. Matson's paper was very thorough and scientific and there is just one remark which I wish to make. He lays emphasis on animal experimentation. Still, we know there is a difference in guinea pigs and rabbits. There is also a difference in different guinea pigs. We know that when we inoculate the guinea pig with tubercle bacilli, or the rabbit, that that tubercle bacillus is not on virgin soil, while the rabbit and the guinea pig when they become inoculated have no immunity back of it and naturally the disease is very rapid and progressive at that time. You take these granules; if they are inoculated through the animal experimentations, as Dr. Matson has emphasized, I can see how easily, without an already established auto-immunity, they could be transformed into real tubercle bacilli. But I doubt very much whether those same granules, if they were inoculated into a child past two years old, would become active, because the child would have the immunity to throw off such a non-virulent inoculation.

DR. C. E. EDSON, Denver, Colorado: The Society is certainly very much indebted to Dr. Matson for the very full and complete paper that he has given us. I have been very much interested in this work for two years, my attention being drawn to it first through Dr. Matson's first paper in the *Beitrag*. I say frankly that I started in in the work with

a great deal of skepticism. It is a good way to begin any investigation. The result of my work over these two years has been increasingly to convince me, so that at the present time I believe that no examination of sputum in any suspected case is complete until it has been stained, preferably by the modified Ellerman method, for the Much-Weiss granules. Until we have done this and proven it negative for the Much-Weiss granules, we have no right to say that that sputum is free from tubercle bacilli or that the patient is free from a tubercular infection. I believe that the same significance must be placed upon the Much-Weiss granules as has hitherto been placed upon the Ziehl staining forms of the tubercle bacillus. They are the same thing pathologically.

So far as our clinical management of the case is concerned, the finding of the Much-Weiss granules in the absence of the Ziehl forms modifies our management of the case in two ways in an early case of suspected tuberculosis of the fibroid type of the chronic bronchitis. There is not perhaps the same necessity for the rigid care of that patient that there would be with the Ziehl form with the prognosis of probable caseation. On the other hand, the presence of these granules in cases of chronic bronchitis beginning with a winter cough should arouse our care in disposing of that sputum, as Dr. Matson so very justly called our attention to. Sputum from these patients is just as infectious to other persons as would be the sputum containing the Ziehl forms. We have all known clinically that patient with chronic winter coughs, chronic bronchitis all their lives, occasionally after the age of 60, as old persons do, develop an old-age tuberculosis and show Ziehl forms, now and then. We have looked upon them as late infections upon an old basis. We must change our opinion now and look upon them as cases that have been tuberculous from the beginning and, we know now, sources of danger to their households and their community, and the late development of Ziehl forms may be due to deterioration of the resistance. The importance of this in diagnosis is apparent.

A very careful study of 46 cases has been made by Dr. Meader, my associate in Denver. The paper is now in press and will be published shortly. It was read before the Denver

County Society last winter. We divided our cases into three clinical types. The first are those in which at one time the tubercle bacillus has been found, the patient has made a clinical cure, the sputum has become bacillus-free under ordinary stainings, and yet constantly with clinical healings at the same time that we have no symptoms now and then the question is raised whether an entire arrest is possible. In this group we found nine patients with this result were negative to Ziehl by the direct stain. Of these nine, one showed Ziehl forms in the concentrated sputum. I will say briefly that the staining was done under identical conditions in every case, the same amount of time and the same amount of stain per slide before we declared it negative. Six of these nine cases showed Much-Weiss granules in the sputum.

The second group were those in which we suspected an early tuberculosis with very few signs, a beginning tuberculosis, possibly in the mediastinal glands. Of these there were 15 cases all negative to Ziehl on repeated staining, two showed Ziehl in a concentrated form, and 11 showed Much-Weiss granules.

The last group, which was the most important one, the group which Dr. Matson has described, we have in the past classed as chronic fibroid phthisis and the old dispute, dating back years and years, as to whether they were tuberculous or not, the peribronchial type. Of these we had 22 cases, all negative to Ziehl by direct staining. Two showed Ziehl in the concentrated form, and 18 out of the 22 showed Much-Weiss granules.

The figures are small compared with Dr. Matson's. They surprised us in the large percentage of Much-Weiss granules found. The Much-Weiss granule, gentlemen, is the same thing as the tubercle bacillus and we must now stain our sputum in cases of chronic bronchitis for the Much-Weiss granules and we will find out the etiology of some of these cases, which will protect our community through the proper care of that sputum, although it may not necessitate the patient being sent away from home to a foreign climate under difficult conditions of living. It will modify our prognosis as compared with the other things. I rise simply to emphatically confirm Dr. Matson's figures and to congratulate the Society that we have been able to hear of this work first-hand from the

man who has brought to the attention certifying of the American profession and perhaps as much as any one clinically to the whole medical profession. (Applause).

DR. H. A. MILLER, Clovis. Gentlemen, as you no doubt know, this is almost a foreign tongue to me. Dr. Matson has spoken in a language that is almost unintelligible to me because my work is along a different line. However, I think all branches of medicine have an interest in tuberculosis, each has had at some time a dream, a hope of the solution of the problem of tuberculosis, and they like to picture the days when their dream will come true. During the discussion, I have tried to follow a little thread in the great woof of material that has been submitted by Dr. Matson. From the diagnostic standpoint, I am able to appreciate his paper very vividly and as Dr. Edson has said in an educational way, from the standpoint of the protection of the community, I am able to appreciate it. There is also a thought, that it might be well to mention, from a practical standpoint; at least I am asking a few questions along that line. If these acid-fast bacilli are so constantly present in caseous tuberculosis, in these classes of cases that are so easy to demonstrate by the old methods and if which treatment has been so discouraging, and if this Much variety is a fat-free variety that refuses to take those stains and this has been brought about largely by the action of enzymes, has any work been done along the injection of such masses with various animal enzymes, and is it not possible that the great mass of our treatment that has been used with partial success and with hope in tuberculosis, might it not be alone the lone of the stimulation of natural enzymes in the body, even tuberculin, even the food values, even the value of rest, of various climatic advantages? Is it not possible that from such studies as this some line of treatment might be evolved along enzymes or some modification of enzymes, either by directly injecting these various animal extracts and secretions into tuberculous masses, into the various cav-

ities of the body, or by use in some other way?

DR. JOS. S. CIPES, Albuquerque: May I ask if the Much granules were recovered in these experiments with guinea pigs, or if the tubercle bacilli were recovered from the section?

DR. RALPH C. MATSON, Portland, Oregon. Closing: The difficulty of obtaining the tubercle bacilli in the proliferative type of tuberculosis and their constant presence in this form of Much-Weiss granule, for instance, this occurring in groups and the fact that you have miliary tuberculosis and the positive proof of the presence of Much granules in these types of lesions by guinea pig inoculation lead us to believe that these forms are transformed by the lipolytic ferments of lymphocytes, for as one studies the pictures of these types under the microscope the striking proof is this lymphocyte richness. Now, while there may be a question about these types of tubercle bacilli, it does seem that it would be safer to treat them as virulent tubercle bacilli and certainly if children have immunity I do not think one can say that they have much immunity or increased resistance up to two years of age; it seems to me they would be particularly susceptible to these forms of tubercle bacilli because our animal inoculation has shown that they are pathogenic.

In this place, I can answer Dr. Miller as to some of the experiments which we conducted. Among them was one in particular which I wish to mention. We took the spleen of a dog and injected that emulsion of virulent tubercle bacilli in the artery until we got a clear fluid out of the vein. We put this in the incubator and each day made sections from this spleen which we studied very carefully for the Much granules. We inoculated guinea pigs from the pulp. Up to the seventh day we could demonstrate Ziehl forms of tubercle bacilli in our smears and our guinea pigs developed an acute general miliary tuberculosis. From the seventh to the fourteenth day, the Ziehl forms were less demonstrable and the pig disease was less virulent. At the end of the fifteenth day, Ziehl forms were no longer demonstrable in this pulp substance.

We could demonstrate Much granules in every smear. Our guinea pig inoculation progressed typically with cavity formation in the lung. Up to the twenty-first day, we could demonstrate Much granules in this spleen pulp. Our guinea pigs no longer died of this miliary tuberculosis, but developed a typical cirrhosis of the lung and liver. Then it occurred to us that there might possibly be some value from this spleen pulp administered in an aseptic way. We inoculated guinea pigs then with this spleen pulp substance plus Much granules rendered avirulent, and then inoculated them with virulent tubercle bacilli in lethal doses. Our control animals died of an acute general tuberculosis. The guinea pigs that had received the prophylactic inoculation or vaccination of spleen pulp and Much granules did not develop an acute general tuberculosis, they developed an acute fibroid tuberculosis. Then we thought this might possibly be of some value in the treatment of tuberculosis in the human. Our first injections were followed by terrific abscess formation, so it was absolutely necessary for us to give up the method, and we have not carried on our investigations further since that time. But it does seem to me that there might be something worked out along that line of rendering tubercle bacilli avirulent, freeing them of their fatty acids, and we are extremely desirous of utilizing these substances in a therapeutic way.

The findings of Dr. Edson as to the percentage of positives are not at all surprising, because as I have showed we found out of 36 cases of these types of chronic lungs disease 14 that were positive. Of these 14, only one subsequently showed Ziehl forms. The last case shown there had been in the clinic three years, had shown Much granules, but never the Ziehl forms. The patient left the clinic and came back six months after our last investigation with an activation of her trouble with Ziehl positive tubercle bacilli in her sputum.

In regard to the question of recovering only Much granules from our pig inoculations, I might say that we did not succeed in recovering the Much granule alone because, we believe, they regenerate under favorable conditions into acid fast types.

I want to thank you very much for the discussion of my paper.

TWO DUTIES OF THE PHYSICIAN IN THE SOUTH-WEST TOWARD THE TUBERCULOSIS PROBLEM.

CARROLL E. EDSON, M. D.
Denver, Colo.

Read before the New Mexico Society for the Study and Prevention of Tuberculosis, East Las Vegas, N. M., Sept. 8th, 1915.

A Society for the Study and Prevention of Tuberculosis has a wide field for its energies, wherever it may be formed. The problems to be solved in the control of this disease are many and varied, and most of them as yet quite unanswered. General interest in a disease which has so many pathologic and sociologic aspects, and which requires so long unceasing a fight for its suppression, is apt to be spasmodic in its intensity. The great wave of enthusiasm created when the laity and the medical profession began their joint attack a few years ago was well characterized by the rather unfortunate name commonly given it of "The Tuberculosis Crusade." Like its namesakes it had the superb vision of immediate conquest and restoration of the Kingdom of Health. We all remember the prophesies that fifteen years would eradicate the disease from our midst. The warfare is still on; and with the difficulties of driving it from its entrenchment not lessened, but only more appreciated.

With the passing of the first fire of enthusiasm the study has fallen more hopefully back into the hands

of the medical profession and of the practical sociologic workers. Under these conditions, and with the knowledge gained during the last fifteen years, we realize that the practical problems to be solved by the various State Societies are not all the same. They differ widely, according to the climatic, economic and industrial conditions of the various localities.

In the high plateau region of the eastern face of the Rocky Mountains, we have very different conditions under which to care for the disease than does the profession in crowded cities like New York, Chicago, or Boston. Not only the sociologic aspect, but the very clinical picture of the disease, is different. As a rule the disease here is seen only in patients sent west because of their illness. We deal chiefly with the individual case, and have fewer of the larger industrial and sociologic factors to confront us. Our attitude, therefore, toward the disease, is somewhat different; and our immediate problems peculiarly our own. I ask your attention briefly to two of the special problems of this region, that a discussion may lead to mutual benefit, and more efficient cooperation.

The first is our duty to set forth, properly but continually, the advantages of the dry, sunny climate we know so well. It was largely the benefit derived from the outdoor life possible in this region which led the medical profession of this country to an appreciation of the part played by fresh air and sunshine in the cure of tuberculosis. The en-

thusiasm and writings of the earlier phthisiologists in Colorado and New Mexico did much to awaken the profession in the east to the real value and importance of these facts. I shall long remember the amazed interest of one orthopaedist when I first urged him to put his children with tuberculous hips and spines out on the roof of his hospital.

With the better appreciation of these factors of air and sunshine it was realized that even in crowded cities much could be gained by even moderate outdoor living and fresher air. The arguments of our earlier climatic enthusiasts were turned against us, and the doctrine was preached that, as fresh air was the same everywhere, an outdoor life was as good in one place as another,—a back yard in Philadelphia as satisfactory as the range in Colorado. Against this dogma any discussion was vain; and any setting forth of the advantage of greater sunshine, dryer air, in making that outdoor life available was met with disbelief or the assertion of self-interest. Accordingly in recent years there has been a lessening number of accurate and effective papers telling of these advantages published by physicians in this territory. This is unfortunate in many ways; for the patients who might otherwise be sent early to a better climate; and for ourselves in that we too easily forget the statistics and data with which we can substantiate our claims for the health-restoring climate we possess.

The compilation of accurate meteorologic statistics is a matter of comparatively little trouble; and

to set them forth in their medical bearing is a real service to our cause. But to publish such data in their medical bearings is quite a different thing from the usual booster pamphlets of hotels or railroad circulars. Every statement must be complete and accurate. So soon as the least exaggeration or distortion of facts enters in, the whole work is worse than useless.

There is a whole generation of younger physicians in the East keenly alert to the diagnosis of early tuberculosis, and appreciative of the proper hygienic care of the disease in an outdoor life, who yet do not know the actual differences in climates as they affect the ability or ease of that outdoor life. And it is just this possibility, comfort, or attractiveness, which may turn the scale in the patient's favor. Too frequently, even when they admit the advantage of such a climate, they do not know the actual conditions of living in various regions to which their patients might be sent. There is more ignorance of such details than we perhaps realize, even among the better informed. This is natural enough, and not a matter of blame. Too few of us in the west know accurately or fully the climatic or living conditions in eastern or foreign resorts. Knowledge of these matters is welcomed by earnest and sincere physicians. It is our duty to supply this information. It is not general encomiums or meteorologic rhapsodies which are wanted; but sober papers dealing definitely with the conditions to be found both in climate and accommodations. Statistics of climate should show

not only the mean temperatures, humidity, sunshine and wind over long periods, but should make clear the extremes to be met,—the frequency and degree of variations from the mean,—the distribution of unusual conditions of weather. Physicians or families in sending an invalid away ought to know just what he will find as regards hotels, the possibility of proper boarding-house, sleeping accommodations, the cost of living, the possibility of securing nursing or hospital care in the case of need. The diversions and amusements which the convalescent may find are matters of no small importance, too often unthought of. The opening for work or occupation after an arrest may determine the choice of a location.

Sober and accurate data on all such questions are much needed; and when published in connection with meteorologic facts will be of the greatest help. More complete and repeated statements of our climatic advantages are desirable for the benefit of those invalids who live in less favored climes. The Lamp of Hygia should not be hid in a bushel.

The economic problem of tuberculosis is one so large, so intricate, and so vital, that no man who in the least appreciates it will attempt its solution in a paragraph. That fresh air and sunshine alone will never cure tuberculosis is a truism; but it needs drumming into the ears and minds of the afflicted, their friends, their physicians, and their communities. The problem of the indigent tuberculous patient sent to a far country or stranded away from

home is appalling, and only too well known to us. In our enthusiasm over what we know our climate can help to do, we ought never to forget the emphasis to be put on the need for food, proper care over the long period required for a histologic cure, and the folly of sending a sick man to a better climate at the cost of all these necessities. That our county hospitals and charity boards cannot take care of non-resident tuberculars should be clearly stated.

The other question I ask you to consider is a duty affecting our own community,—the problem of our own protection.

The smaller communities, provided they offer suitable boarding places, are preferable resorts for pulmonary invalids. The reasons of less smoke, less crowding, fewer distractions, and so on, are too obvious for mention in this Society. It is in such smaller communities that the best results have been obtained, as a rule.

Now the introduction into a comparatively small community of any considerable number of tuberculous patients may be a menace to that community, may be a detriment to its welfare, or may be a social and economic advantage, entirely as the community deals with the problem. For its proper solution the medical profession is primarily and chiefly responsible. In few conditions can the high intelligence or the ignorant fear of a community show itself so markedly as in its attitude toward invalid newcomers. In no other disease can a proper altruism bring such definite returns of security to

the community itself. Such formal lines of defence as registration or legislative restrictions are in my belief of little or no use. I question their value in general. If the community is small and its restrictions local or ostracizing, the result is to work, first, hardship to the unwilling and innocent patient; and sooner or later detriment to the community. Think of the physicians, the lawyers, the scholars, the business men, who came here as invalids, and, regaining their health, have made here their homes! Have they not raised the level of life? Have they not largely made these regions the places so well worth living in? Ought we to deny to others the blessing whose fruits we now enjoy? Yet it is our duty to maintain and protect the public health against infection. What is the solution? What is our defence for defence we may rightly seek? It lies in the simple, proper education of the people—well and ill alike—that the sputum, and not the patient, is the source of infection—that the patient is not a source of danger provided he properly disposes of his expectorations. This education and the control of conditions under which the patients live, are the lines of efficient defence. For both the physician is responsible. If every physician would see to it that his patients used proper sputum cups, and would refuse to send patients to boarding-houses where such due and simple precautions were not insisted on and carried out; if we looked into the conditions which our ambulant

office patients were living, it would be but a short time before the public opinion of any community would be educated to the knowledge which casts out fear. In making the abode of the invalid hygienic and safe for him, we protect ourselves and our towns.

This sounds very simple—doubtless so simple as to be dreamy. It is simple; but its successful carrying out means watchfulness, unceasing attention, and unforgetting instruction of every patient by his physician. Every first-class, clean and hygienic boarding house (watched by a physician) is an asset and a defence to the community. Instead of refusing an invalid the chance of resting in a public place or park, it is a better asset and a surer safeguard to provide resting places; and a notice that the benefit of such a resting-place is enhanced to himself and others if it is kept clean, will rarely be disregarded.

Doubtless certain ordinances (regarding spitting, for instance) will help maintain control over the wilful or the careless; but in my experience such are few. Instruction, example, reminders, and public custom, are better than laws. The first public opinion to be educated is that of our own local societies—in cooperating with the health officers, the local boards of trade, and town councils. At the bottom, however, collective efficiency depends on individual devotion to the self-imposed labor of watching and working for the good of the community.

A PLEA FOR A MORE EXTENSIVE USE OF TUBERCULIN IN THE TREATMENT OF TUBERCULOSIS

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Read before the joint meeting of the 34th annual session of the New Mexico Medical Society and the 4th annual session of the New Mexico Society for the Study and Prevention of Tuberculosis, East Las Vegas, N. M., Sept. 8th, 1915.

The disrepute into which tuberculin fell as a result of its early faulty administration should not be used at present as an argument obtained by the present improved methods of administration justify us in believing it to be.

It is my purpose in this paper to discuss the general principles underlying this treatment, including the indications for its use and the results obtained by later and more improved methods of administrations.

Tuberculin has been in use for a quarter of a century, and it seems strange after all this time it should be so misunderstood and improperly given. This is due to a misunderstanding of the remedy and what is to be expected of it. In the first place, too much is demanded of it; we demand that it do the impossible. It may not immunize a guinea pig; it may not produce complete immunity; it may not cure experimental tuberculosis; and yet it is of value in the healing of human tuberculosis.

In order to understand the action of tuberculin, its specific immunizing and specific stimulating properties must both be borne in mind.

Tuberculin is made up of many substances, such as proteins, fats and toxins which produce specific antibodies against themselves, and which, when administered in the proper proportions, produce more or less immunity against the tubercle bacillus. Many of these substances, when injected, produce a specific stimulation of the foci of infection. It is to this special focal stimulation that healing is due.

RESULTS OF TUBERCULIN THERAPY.

The results of the moderate use of tuberculin show quite clearly that it is not a "cure" for tuberculosis, but a rational and useful therapeutical aid. The out-put of anti-bodies provoked by tuberculin is dependent upon the condition of the body as a whole, and its administration can be of no help if the resources of the body are exhausted and the calls are incapable of beneficiary reaction. Tuberculin may be given to any patient whose resisting powers have not been too much depressed as a result of complications.

Kremser chose 110 patients expectorating tubercle bacilli and treated 55 unselected cases with tuberculin; of these 22, or 40 per cent, lost their bacilli; of those treated without tuberculin only 16, or 29 per cent, lost their bacilli.

Dr. E. L. Trudeau of Saranac Lake advises me in a personal communication as to his results with tuberculin, as follows: "I have been using the tuberculin treatment ever since Koch advocated it in 1890. In afebrile cases the results are very striking."

In a personal communication from Dr. F. M. Pottinger of Mon-

rovia, California, under date of July 20th, he advises me as follows:

"I have now used tuberculin in the treatment of tuberculosis for twenty years, and each year I learn something new about it and about its administration; and each year I become more convinced of the good that I can do with it. I feel that it adds from twenty per cent upward to the patient's chance of cure when properly given. In the first place, it creates an immunity or resistance against itself, and to that extent immunizes against tubercle bacilli; but it does not create a perfect immunity against tubercle bacilli. In spite of this, however, it has a value which it is impossible to fully estimate in that it produces a hyperaemia around the foci of infection, and in this way hastens the formation of scar tissue.

In visible tuberculosis, such as in the larynx, we can see how it hastens the process of healing. In the lungs we have this same rapid scar tissue formation as evidenced by the relatively rapid contraction of the lung, and the shifting of the mediastinum. We often see as good results in a few months treatment as occur ordinarily in many months where the patient is treated by hygienic methods alone."

Dr. Lawrason Brown, of Saranac Lake, advises me as follows:

"My experience in the treatment of 300 patients with tuberculin, giving over 20,000 injections, leads me to believe complications occur less frequently among patients receiving tuberculin treatment."

Dr. Wilkinson has little doubt that when the effects of tuberculin

treatment in stages one and two of pulmonary tuberculosis have been carefully and impartially studied, this method of treatment will come to be adopted as the essential method of treating the disease.

Dr. Ponndorf analyzes the experiences at Weimar with 153 cases of various forms of tuberculosis; 44 were entirely cured, 37 much improved and 28 improved, while the outcome is not known in 12 cases; 13 showed signs of a reaction and the treatment was dropped. He mentions parenthetically that 37 of 59 patients under 25 had more or less of a tendency to goiter, and the thyroid returned to normal size in nearly all those who were benefited by the tuberculin treatment. The same treatment was applied to three diabetics without modifying the diet, and the sugar in their urine dropped from 6 to 2 per cent; from 4.25 to 1.8; and from 2 and 5 per cent to zero after one or two sittings.

OBJECT OF TREATMENT.

We have two objects in view in tuberculin treatment—to stimulate the tubercles to react intermittently and thus aid in absorbing and healing the tubercles and also the ulcers that are so sluggish; to lower the sensitiveness of the patient to the poison, and that means to the tuberculin formed in his own tubercles as much as to that injected. The object of lowering the sensitiveness is to prevent the constant tendency to febrile attacks or exacerbations so common with tuberculous subjects.

Its field of action is in cases which have not passed beyond the

stage of infiltration and which have shown a certain degree of improvement under proper food, fresh air, rest and other approved methods. In cases in which improvement has become sluggish or ceases, or retrogression takes place, the slight additional stimulus afforded by an appropriate tuberculin preparation administered at well chosen times and in correct dosage will often awaken the defensive and restorative processes of the organisms and be followed by complete recovery.

In the advanced stages tuberculin must only be given in specially selected cases. Experienced observers may employ it cautiously under conditions that seem to call for its use, but others should avoid it, especially in cases that seem to show a tendency to continuous fever or in which there is, or has been, recent active softening.

The results of tuberculin therapy can easily and quickly be seen on ulcerations of the tongue and larynx, and I wish to report the following case:

F. B., male, 30, railroad engineer; March, 1914, started to cough and consulted his physician with a diagnosis of pulmonary tuberculosis, and was admitted to the Ohio Franklin County Sanatorium. In April, 1914, small ulcer started on the dorsum of tongue and gradually extended deeper and wider. As he was getting worse he was advised to come west. Dr. G. H. Snyder of Columbus, Ohio, referred him to me and I admitted him to my Sanatorium on November 27, 1914.

At this time the patient was cachectic, weak and anaemic with in-

volvement of the upper right apex of lung, deep ulceration of the larynx and an ulcer on the dorsum of tongue as large as a ten cent piece and about a quarter of an inch deep. The ulcer was very painful and bleeding all the time; slowly progressive, its base slightly indurated and covered with flabby light colored granulations.

The first three months he was put

started him on tuberculin and the result was remarkable, as you will note from the photographs which were taken before and after the tuberculin treatment. The ulcer on the tongue started to heal up immediately and after four months of tuberculin treatment his tongue was completely healed. His lungs and throat also healed up very rapidly, and he is now an arrested case.



BEFORE TREATMENT.



AFTER TREATMENT.

on the general Sanatorium treatment and the throat and tongue were treated locally. The ulcers were stubborn; they would not heal under any ordinary treatment but instead became worse. After he had been under treatment for three months with unfavorable results, I

PATIENTS SUITABLE FOR TUBERCULIN.

Tuberculin is indicated in the treatment of patients with incipient tuberculosis, as it protects them from relapse and insures in a greater degree their ability to continue work. Old, fibroid cases with fair nutrition are especially suitable, as

such patients become capable of moderate activity and are much less likely to suffer from relapses.

Tuberculin has yielded especially good results in tuberculosis of the eye. In tuberculous adenitis good results are accomplished with those glands which have not yet softened. In tuberculosis of the ear, tuberculin is especially indicated and should always be used. Tuberculosis of the intestines and mesenteric glands is benefited by tuberculin.

Cases of latent tuberculosis, especially the children of infected families who are below par physically and show tuberculin hypersensitiveness with indefinite physical signs, should always be given a course of tuberculin treatment.

Tuberculin, according to the generally accepted conception of its therapeutic status, is a valuable adjunct in the treatment of tuberculosis of the bone and joints. In many cases, the results are too striking to be denied, the lesions showing improvement after the first dose and rapidly progressing to complete and final cure.

I am so positive of the clinical value of tuberculin in my own practice, that I would not feel that I was doing justice to my patient if I withheld it.

On the other hand, I see many men whom I feel are doing harm in using it. It is not the remedy which is successful in one instance and failing in the other; the difference is in its administration.

In my personal experience in the clinical use of tuberculin in tubercu-

lous laryngitis, I have had exceptional opportunity to prove its worth, and am able to say that I expect practically every case of tuberculous laryngitis in patients in whom the pulmonary disease is not too far advanced to become arrested. I have never seen such results without tuberculin.

DISCUSSION.

DR. CHARLES E. GIESE, Colorado Springs, Colo.: I suppose that it is more or less of a confession of perhaps mental incompetence when one has treated as many cases and has seen treated as many cases as I have with tuberculin and still do not feel like committing oneself very strongly one way or the other. In the last six years, I would say, roughly, that I have seen some 1500 patients treated with tuberculins of different kinds and over different periods. I think that in my early experience I probably did in some instances some harm with tuberculin. In my later experience and especially in the last three or four years, I think that I have not done any harm. I do not believe that any of us who see a considerable number of cases would be inclined to put tuberculin foremost in the treatment of any case. It is not to be compared with the influence of rest, a proper hygiene, fresh air, food, etc. After all is said and done, I think those are the things upon which we must yet depend, exclusive, of course, of certain surgical procedures such as pneumothorax, rib resections, etc. I have never seen in my experience an unfavorable case converted into a favorable one by tuberculin. I have seen favorable cases that I thought were perhaps rendered more favorable by its judicious use.

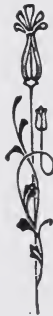
The experience of the essayist has not been mine in regard to tuberculosis of the larynx. In advanced tuberculosis of the larynx, as we all know, we ordinarily have a considerable amount of fever and general progression of the disease. Of late years I have refrained from giving any such cases tuberculin.

The advice that I give a patient is something along this line. Many of them come requesting tuberculin and I explain to them

something like this: Suppose that we have a horse that is depleted by disease or by under-feeding or in some way and have this horse hitched to a heavy load and supposed to pull the load up a hill, no amount of whipping that you can give that horse is going to make him pull that load; but, on the other hand, if you have a horse that is fairly well fed and after considerable trial has not been able to pull the load and is perhaps a trifle lazy, a good swift cut with a whip will sometimes help matters along. That is the crude way in which I explain to these patients my idea of tuberculin.

Given a case where the nutrition is good, where the temperature is approximately normal, where the lung findings do not change over a considerable period of time, I then advise or suggest to them, explaining as best I can, that they will certainly not be injured by tuberculin and that in all probability they will be benefited somewhat by its effects.

It is very difficult to differentiate, where you have patients under sanatorium treatment and they improve, as to what it is that is making them improve. Ordinarily you change the condition of the patient all around, you change him from a life of activity to a life of ease, from a life that is more or less indoors to one that is outdoors, from a low altitude, often, to a high altitude, and you give him tuberculin and he improves. We are too much inclined, I believe, to attribute the result obtained to the effect of the tuberculin and not to the general hygienic treatment. It seems to me that tuberculin has its use. I did not mean to say here that I would condemn the use of tuberculin, not at all. I have given it in many cases and still give it in some cases, but I am not as enthusiastic about its effects as I was a few years ago.



TUBERCULOSIS OF THE LARYNX.

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Read before the Grant County Medical Society October 29, 1915.

As a complication of pulmonary tuberculosis, this lesion assumes a place of first importance and when present is notably a most discouraging factor.

The relative occurrence and importance of primary and secondary lesions will be discussed hereafter.

A brief review of the anatomy of the larynx is in order before the lesions themselves are discussed and such matter not directly related to tuberculosis of the larynx is omitted.

The larynx is composed of nine cartilages, three single and three in pairs.

- 1 thyroid.
- 1 cricoid.
- 1 epiglottis.
- 2 arytenoid
- 2 cornicula laryngis.
- 2 cuneiform.

The thyroid cartilage is the largest cartilage of the larynx and consists of two lateral lamellae joined at an acute angle in front forming the anterior and upper portion of the larynx and contains practically all the essential portions of the larynx.

The cricoid cartilage resembles in shape a signet ring, it is smaller but thicker and stronger than the

thyroid cartilage and forms the lower and back part of the larynx.

The arytenoid cartilages are so called because of a resemblance they bear to the mouth of a pitcher. They are two in number situated at the upper border of the cricoid cartilage, at the back of the larynx, in the interval between the posterior borders of the lamellae of the thyroid cartilage. Each cartilage forms a three sided pyramid, base downward.

The cornicula laryngis are two small conical nodules which articulate with the summits of the arytenoid cartilages and serve to prolong them backward and inward.

The cuneiform cartilages are two small elongated bodies, placed one on each side, in the fold of mucous membrane which extends from the apex of the arytenoids to the sides of the base of the epiglottis. They give rise to the small whitish elevations on the inner surface of the mucous membrane just in front of the arytenoid cartilages.

The epiglottis is a thin flexible cartilage, leaf shaped, placed behind the tongue, covering the upper opening of the larynx. Its free extremity, which is directed upwards, is broad, round and often notched. When the epiglottis closes, its free extremity points backwards, away from the root of the tongue.

The superior aperture of the larynx is a triangular opening, wide in front, narrow behind and sloping obliquely downward and backward. The interior of the larynx may be considered to be divided into three spaces, a portion between the upper opening and the false vocal cords

(which are placed above the true cords), a portion between the false and true cords, and a portion below the true cords. The false vocal cords are thick bands of mucous membrane enclosing a narrow band of fibrous tissue. They are not directly connected with the production of the voice. They are attached in front to the angle of the thyroid cartilage immediately below the attachment of the epiglottis and behind to the anterior surface of the arytenoid cartilage. The true vocal cords are strong bands of elastic tissue covered by a thin layer of mucous membrane. They are attached in front in a depression in the lamellae of the thyroid cartilage and behind to the anterior angle of the base of the arytenoid cartilages.

The entire larynx is covered by a continuous layer of mucous membrane. The lymphatics of the larynx arise from the upper and lower sets of the deep cervical glands, which join the jugular group of glands and empty, on the right side directly into the junction of the internal jugular and subclavian veins and on the left side into the thoracic duct.

The arteries of the larynx are the laryngeal branches derived from the superior and inferior thyroids, which are branches of the carotid. The veins are the superior thyroid which empties into the jugular and the inferior thyroid which empties into the innominate vein.

The nerve supply is the superior and inferior or recurrent laryngeal nerves. The inferior or recurrent laryngeal nerve on the left side

winding around the arch of the aorta.

Two points in the etiology of laryngeal tuberculosis present themselves for consideration, viz—whether it is a primary or secondary infection and the source of invasion of the larynx with the tubercle bacillus. The first can probably be answered in the best way by stating that while primary tuberculosis of the larynx may exist, it is so extremely rare that its occurrence in a given case can be looked upon with more than reasonable doubt in the absence of signs elsewhere and that secondary infection is usually the case. As the path of entrance of the tubercle bacillus into the human body has not yet been definitely determined and as the larynx may be a point of least resistance as well as the spine, joints, or other portions of the body, it can be assumed that the disease may originate there, (in the larynx). The limited number of cases reported together with the insufficient evidence makes the primary lesion still a doubtful quantity.

Thomson states "Primary tuberculosis of the larynx as shown by post-mortem integrity of the lungs is so extremely rare that for practical purpose its possibility may be neglected. When cases are met with where no pulmonary lesion can be detected, this is simply because our present methods of investigation are inadequate to detect early or limited deposits in the chest."

Lockard states "In so far as the larynx is concerned the possibility

of an occasional primary infection has apparently been proven by the post-mortem investigations of Orth, Pogrebinski and Demme, in cases, wherewith undoubted laryngeal tuberculosis, the lungs were found to be entirely normal. These cases in connection with a few others of a less definite nature would be absolutely conclusive were it not for one factor which may invalidate previously accepted conclusions—the possibility of the infection of the larynx by way of the lymphatic glands"... These few cases previously cited culled from the entire voluminous literature and quoted by all authors as the most typical upon which to base the claim of occasional primary localization of the tuberculous process in the larynx cannot therefore be accepted as definitely establishing the supposition without further confirmatory evidence, for not only must lesions of the lungs be excluded, but the lymphatic system as well: in view of the above proven facts (which are admitted here, but the book cites case after case of tuberculosis of the tonsils and cervical lymphatics) these frequently cited cases of Orth, Pogrebinski and Demme and others can no longer be held to indisputably prove the occurrence of primary tuberculous infections of the larynx. The probability of a direct infection of the larynx from without is extremely doubtful, although upon purely theoretical grounds the possibility must be admitted."

The source of invasion of the tubercle bacillus can be attributed to three routes, each of which is still,

open to controversy, but the writer is inclined to favor the lymphatic route first, the blood stream, second and lastly, if at all, the direct invasion of the larynx through the mucous membrane, from contact with the bacilli laden sputum.

The lymphatics of the larynx and neck are most intimately connected with those of the chest and studies of route travelled by an infection in the chest practically show that the lymphatics are the means of travel of an infection from the glands of the hilus into the lung structure. The tonsillar route plays an important factor in laryngeal infection, together with infection from the cervical lymphatic glands. It must be remembered that an infection can travel against the lymph stream as well as with it. In support of the theory of infection by the lymph stream we have the fact that the portions of the larynx affected is most marked upon the side where the pulmonary disease is farthest advanced, or in unilateral pulmonary involvement the lesion is in a majority of instances upon the corresponding side.

In support of the theory of direct infection by the sputum is the fact that the portions of the larynx mostly affected are those parts that are directly exposed to the continual irritation of the sputum, the vocal cords, the posterior wall and the arytenoid cartilages. However, this fact does not explain that many cases of laryngeal tuberculosis are frequently seen in which the lung lesion is either quiescent or incipient with little or no sputum, and

therefore practically no chance of contact infection. Conversely many cases of far advanced tuberculosis of the lungs with profuse sputum loaded with bacilli never develop laryngeal lesions. Another point is that those portions of the larynx covered with squamous epithelium seem more prone to attack, while corresponding portions of the pharynx are usually immune.

As many cases of pulmonary tuberculosis exhibit hoarseness it would appear that the general toxemia of the disease has an affinity for the laryngeal structures thus reducing its resistance or acting upon its enervation.

The route via the blood stream can be supported or disputed with the same argument given above for the lymphatic route with the exceptions in favor of the lymphatic stream. It remains yet to be proved that the tubercle bacillus can invade the blood stream, as the bacteriacid power of the blood in tuberculosis is now conceded. Also it would seem that bacilli entering the blood would travel a far and complicated route before they lodge in the larynx.

Laryngeal infection is twice as frequent in male consumptives as in female, probably due to the abuse of alcohol, tobacco and exposure to dust, etc., in their occupations. The complication is most frequently observed between the ages of 20 and 40, and a varying percentage, 25 to 50 of all pulmonary cases develop this complication.

The pathology of the lesions is similar to that of lesions elsewhere.

The symptoms of this lesion are sooner or later changes in the voice, varying from a temporary hoarseness to complete aphonia. Pain on swallowing especially in the later stages may be a prominent symptom. In many cases symptoms of a definite nature are entirely lacking. The site of the lesion is a determining factor, if on the true cords it interfere with the voice and if the epiglottis is attacked dysphagia results. A dry brassy cough, paroxysms of which are brought on when swallowing or on examination is a characteristic symptom.

The lesion may be in the form of a redness with thickening, an infiltration or an ulceration. The diagnosis is made by local examination which should be a routine procedure in all cases of pulmonary tuberculosis, especially in institutions. As the occurrence of primary tuberculosis can be ignored the presence of a red thick cord, or an infiltrated area or ulcer in the larynx of a tuberculous individual makes the question of a differential diagnosis exceedingly simple in most cases. The occurrence of syphilitic lesions must not be overlooked, but in doubtful cases a positive serum reaction, together with a prompt improvement and perhaps cure under proper anti-syphilitic treatment should soon clear up the diagnosis. New growths can only be differentiated by their excision and microscopic examination.

Examination of the larynx with the laryngoscope is usually the method used in diagnosis, the same method for treatment. Killian has

devised a suspension laryngoscope by which a direct method of examination and treatment can be done. The use of this method does not seem justified in a majority of cases, as it is very uncomfortable to the patient, and the indirect method answers the purpose. Killian's method is especially adapted for operative procedures.

The treatment of this condition covers a wide field varying from doing nothing at all to a wide removal of the diseased areas. The treatment may be divided into general and local, palliative and curative. The general treatment consists of the usual measures that apply to the treatment of pulmonary tuberculosis. In every instance the patient should be directed to speak in a whisper, if at all. Smoking is prohibited. As far as tuberculin is concerned it does not appear to have any specific effect upon the laryngeal condition, but an improvement in the general condition of the patient usually means an improvement in the larynx and tuberculin is often efficient in this respect.

The local treatment is directed to the lesion and is used in the form of sprays and applications, the use of the electric cautery and rarely in the form of surgical interference. The writer has reviewed the long list of drugs and the methods given for the treatment of this lesion and will only enumerate those that he has personally seen do the most good. These are the application of a 2 per cent solution of formalin, and the use of the electric cautery. Under palliative treatment, which

is used in far advanced cases and directed to the relief of the pain and dysphagia the practice of injecting the inferior laryngeal nerve, either with alcohol or cocaine which has many advocates seems to be a needless procedure as the patient usually has only a short time to live and a local spray or the application of cocaine and the administration of morphine hypodermically is all that is necessary to relieve their suffering.

Feeding in these cases is a difficult matter but soft bland food rather than liquids, rectal feeding, transfusion and the stomach tube will maintain their nutrition. Surgical operations such as excisions do not seem to meet with good results. The complete removal of a diseased epiglottis to make the patient more comfortable as often justified.

The prognosis can best be summed up in the statement that the prognosis of the pulmonary condition present can be applied to the laryngeal lesion. Some years ago a case with a laryngeal complication was considered hopeless, but with proper treatment such a case can now be cured. The laryngeal improvement keeping pace with the pulmonary condition.

REFERENCES.

Loakard, Thomson and Progressive Medicine freely consulted and quoted.

THE PHYSICIAN'S VISITING LIST

(Lindsay & Blakiston's) For 1916.

This is the sixty-fifth year of the publication of this ever popular and old reliable visiting list. It contains a calendar for 1916-1917; a table for computing the period of utero-gestation; a table of signs; a short article on incompatibility; a table of the antidotes for the commoner poisons; a short discussion of the metric system; a table for the conversion of the apothecary's weights into grams; a dose table; a table of the quarantine periods in various infectious diseases; a short reference to asphyxia and apnoea, and a comparison of thermometers table. All these in addition to the usual blanks found in a visiting list.

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Philadelphia, Pa.; P. Blakinston's Son & Co.

There has recently been compiled by the Medico-Legal Bureau of the American Medical Association and published by the Association, A Digest of the Case Law of the Regulation of the Practice of Medicine.

This subject is of great importance to the medical profession and particularly to medical organizations that we feel it our duty to call the attention of the profession to this volume.

The standardization and regulation of the practice of medicine by the state is one of the most important questions in the medico-legal field and its proper solution is of the utmost importance to the medical profession. We therefore take pleasure in recommending this volume to our readers. The price is six dollars and the book may be obtained from the American Medical Association.

THE ANTITOXIN TREATMENT OF DIPHTHERIA.

It is a generally recognized fact that anti-diphtheric serum has in large measure robbed diphtheria of the dread with which it was formerly regarded. In the twenty years since its introduction into therapeutics it has saved countless lives and given to the medical profession control over a disease in the presence of which the physician had previously been all but helpless. The value of diphtheria antitoxin, both remedial and prophylactic, rests upon so sure a basis that it requires no word of commendation. In the language of an eminent American pediatricist "no table of figures is so convincing to an individual as personal experience, and by this argument one by one the opponents of antitoxin have been converted."

What make of diphtheria antitoxin to employ is a question which, sooner or later, confronts every physician. It is a question that should not be answered "off-hand." On the contrary, it merits the most thoughtful consideration. Obviously, all antidiphtheric sera are not of equal merit. The antitoxin selected should be a product of established purity and potency—a product, moreover, that is backed by experience, scientific knowledge and adequate manufacturing equipment. Perhaps the name which comes most promptly

to mind in this connection is that of Parke, Davis & Co., among the earliest and now the largest producers of diphtheria antitoxin. That this concern regards the business of serum production as one not only worthy of the highest skill and endeavor, but actually demanding it, is evident from this excerpt from a current announcement:

"When (in 1894) we undertook the manufacture of diphtheria antitoxin, we had one dominant ambition: to produce an antitoxin that should leave nothing to be desired—an antitoxin that the physician might administer at a critical moment with assurance that it would not fail him. In all the years that have since elapsed we have never once lost sight of that ideal. Diphtheria antitoxin that is carefully, scientifically, conscientiously made depends a large expenditure of time and money. The cost is amply justified. The value of a human life cannot be measured in dollars and cents. We produce the best possible antitoxin, and we spare no expense in doing it."


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The New Mexico Medical Journal

Volume XV

JANUARY, 1916

No. 4

E . D . I . T . O . R . I . A . L

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FAVOR THOSE WHO FAVOR US.

THE NEED OF THE HOUR.

Articles in the daily and weekly press of New Mexico have from time to time carried news items relative to an epidemic of some contagious disease in some one or more of the various sections of the state. The latest to meet our eye is one from Chavez county in which mention is made of an epidemic of diphtheria in Hagerman. The conditions in the town are such that all schools have been closed, all public gatherings forbidden and even the churches have discontinued their services. Indeed so serious does the situation seem to have become that all children have been forbidden the public streets.

To our certain knowledge diphtheria and scarlet fever are claiming victims in other localities in the

state and while not epidemic, the character of the disease and of the population are such that it is reasonable to expect that they are likely to become epidemic elsewhere at any time.

In the same issue in which the Hagerman condition is detailed there appears under an Albuquerque date line a statement purporting to come from Doctor L. G. Rice, president of the State Board of Health and Medical Examiners to the effect that 500 deaths have occurred from diphtheria alone in the upper Rio Grande valley during the past three years. If this be true, and no one at all conversant with conditions will doubt it, it is safe to venture the assertion that at least twice that number have occurred in the entire state in the same time. If we were to total up the number of deaths from preventable disease for the past three years in New Mexico the number would be much larger and probably beyond reasonable belief.

Why is this?

Doctor Rice gives the answer. *The*

law confers no jurisdiction and the legislature made no appropriation.

What is our Board of Health anyway? Nothing but a Board of Medical Examiners whose sole duty seems to be to determine who shall and who shall not practice medicine in New Mexico under our present excellent (?) medical law.

This Journal believes that the time has come, yes, has long since come, when the physicians of New Mexico should devote their time and energy and attention to the securing of a law for a Board of Health that will be a Board of Health in *fact* as well as in *name*. It is nothing short of a disgrace to the State as well as to the medical profession to admit a condition of affairs as exists in this commonwealth in this age and time. We have a Sheep Sanitary Board and woe be to the transgressor of the law under which they work. Let a cattleman make an effort to evade the law when shipping out cattle or shipping in new stock to keep up the grade on the range and see what happens to him. Even the dairy cattle are watched as carefully as is possible for them to be watched when they are being imported or exported—and rightly so, all of this, but how easy and how simple to bring in a case of scarlet fever or diphtheria or smallpox and get away with it.

The cattle and sheep on the range are assets—they are so many dollars and cents. The same is true of the dairy cows. Even the pigs and chickens are looked after, for they, too, are reckoned in terms of dollars and cents, but when it

comes to human beings—well, *they are just people, nothing more.*

The greatest asset of New Mexico is her people, be they whom they may. From the new-born infant, whose eyes are endangered by ophthalmia neonatorum to the oldest citizen whose faltering steps tell that life's battles are nearly over, they are assets that neither gold nor silver can buy; assets greater than all the mines and minerals, greater than all the farms and their produce, greater than all the pigs and cows and sheep and range cattle, yes, infinitely greater than all of these in value to a great state, yet protection — ABSOLUTELY NONE.

There is not a county health officer along the Mexican border who has not had a fight on his hands these long years ago to keep out smallpox. The epidemic of typhus fever in Mexico is another source of great danger—great enough to cause our sister state of Texas to place health officers along the border to prevent its invasion, but not one single thing has been done by the New Mexico Board of Health to investigate conditions and to prepare against invasion—*because they have no jurisdiction.*

IS IT NOT PITIFUL? IS IT NOT PITIFUL?

Physicians of New Mexico, the duty is yours. The grandest part of modern medicine is prevention. Prevention demands laws that will prevent. Laws are created only on demand and demands can come only when the *people are properly educated to the need*. Education of the

public to the need for a real Board of Health is the *need of the hour*.

If the Board of Health and Medical Examiners as now constituted were operating under a law that conferred power to act and furnished the means to the end we would see a vast difference. The personnel of the present Board of Health and Medical Examiners is beyond question. The men are all able, conscientious physicians than whom none stand higher in the state. With the men we have no fault, our fight is against the law under which they operate. They *must* be given a law that means something before they can do anything. The county health officers operate under the rules set for them by the county commissioners and spend just what they are allowed and no more. This is never too much, never enough, but under the present tax burden it is all that they can expect. True, there is a law which says that people shall report contagious disease when they know or learn of its existence, but this is an old law and practically obsolete and never enforced—public opinion is against it. We must have a new law that will confer power on a central body and find funds for them to carry out its provisions.

This Journal believes that under an effective Board of Health law with as capable and able men to see that its provisions are carried into effect as we now have as members of our present Board of Health and Medical Examiners the necessity for a new Medical Practice Act will be-

come a negative one. In other words, give New Mexico a real Board of Health and real health laws and carry them out absolutely without fear or favor and the legitimate practice of medicine will take care of itself. If we had to choose between a new medical practice act and an effective board of health law we would unhesitatingly choose the latter.

Let the profession of New Mexico, the legitimate profession of every creed of practice—if there still be creeds—join hands in this work of educating the public up to the demand for efficient health laws that will protect the people—you and me and those dependent upon us and upon them—at least in the same measure as is now vouchsafed to the cow and calf, the sheep and lamb and other animals.

Doctor, as you read this will you not resolve to do your part?

POISONOUS FLY PAPERS.

A year ago, in discussing this subject editorially, we gave a partial report of the cases of arsenical poisoning of children from accidentally consuming the contents of fly destroying contrivances during the summer of 1914. It was gratifying to note the number of medical journals that reprinted our editorial or commented upon the subject. The discussion was evidently a timely one.

For the summer of 1915 we have

been able to secure the reports of the following cases:

Month	No.	Fatal	Recovery Indicated	Recovery Doubtful
May1	1		
June2			2
July5	2	2	1
August	..14	5	8	1
Totals	..22	8	10	4

These cases were reported by the daily press as occurring in the following states: Georgia, 1; Illinois, 6; Indiana, 2; Iowa, 2; Massachusetts, 2; Michigan, 2; Missouri, 1; Nebraska, 1; New York, 1; Oklahoma, 1; Ohio, 1; Pennsylvania, 2; a total of twenty-two cases. This report must necessarily be considered as very incomplete and but an indication of the possible extent of a wholly preventable danger.

We again point out the fact that the symptoms of arsenical poisoning are very similar to those of cholera infantum and that undoubtedly a number of the cases of cholera infantum that occurred were really cases of arsenical poisoning, and death if occurring, was attributed to the fact. The cases reported were of children ranging in age from 1 to 6 years. These little patients are not old enough to tell what they have taken when questioned as to their illness and unless they are seen consuming the fly poison the actual cause of their sickness or death is overlooked and the fatality ascribed to cholera infantum or to some other similar causes and the error in diagnosis goes undetected.

We repeat, arsenical fly destroying devices are dangerous and should be abolished. Health officials

should become aroused to prevent further loss of life from their source.

Our Michigan legislature, this last session, passed a law regulating the sale of poisonous fly papers. Similar enactments should be secured and enforced in every state in the Union—From the Journal of the Michigan State Medical Society.

ENDOWMENT OF \$500,000 TO AMERICAN COLLEGE OF SURGEONS.

The American College of Surgeons begins the new year with an announcement that it has secured from its Fellows an endowment fund of \$500,000. This fund is to be held in perpetuity, the income only to be used to advance the purposes of the College. By this means lasting progress toward the purposes of the College is assured.

The College, which is not a teaching institution but rather a society or a college in the original sense, now lists about 3400 Fellows in Canada and in the United States. Without precedent for swiftness of development it stands today a powerful factor both in the art and in the economics of surgery.

Primarily the College is concerned with the training of surgeons. But the significant fact in connection with the endowment just secured is that it has come from the surgeons themselves, inspired by a motive for better service to the patient. Ideals in the professions of medicine are living things. Probably no more convincing proof of

this fact exists than the sacrifice which the surgeons of this continent have made willingly in order to raise this fund.

To begin with, these ideals are to find concrete expression along the following lines of activity:

1. Since the whole problem of the training of specialists for the practice of surgery is the primary purpose of the College, the Regents propose at an early date to present a clear conception of the College to the undergraduate medical students of this continent. The Regents, further, will ask each senior student of this group who has in mind to specialize in general surgery or any branch of surgery to register with the College. As these students, then, serve later as internes and as surgical assistants, they will be requested to report these facts to the College. The College, in turn, will systematically seek information as to the ability and character of such men; and the information thus obtained becomes the basis of admission to Fellowship in the College. In addition to this procedure, the Regents will insist upon the proper keeping of case histories, and they will endeavor to stimulate in these men in training right ideals of medical practice. In this program they ask the active co-operation of the faculties of the medical schools and of all practitioners of medicine.

2. Inasmuch as proper training in surgery is inseparably involved with the conduct and efficiency of hospitals, the College will seek accurate data on all matters which relate to hospitals. From time to

time it will publish studies upon hospital problems, the purpose being always to be helpful to the hospitals. These publications, further, will inform recent medical graduates as to where they may seek adequate general or special training in surgery. To be concrete the College will deal with such problems as (a) the proper equipment for medical diagnosis, e. g., well equipped laboratories for chemical, pathological, and X-ray work; (b) the proper forms for case histories and the facilities for keeping these records; (c) the management and the curricula of the nurses training schools; (d) the specialization essential in any well organized hospital.

3. The College will ask the faculties of medical schools to consider the advisability of conferring a supplementary degree of proficiency in general surgery and in the various specialties of surgery.

4. The College will issue readable monographs, educational in nature, to the press, to the general public, to hospital trustees, and to the profession of medicine upon subjects of medical procedure and the whole meaning of fitness to practice surgery.

The entire impetus of the College springs from within its own membership. Necessarily that impetus implies reform. But there is a vast difference between reform preached at men and reform innate in the hearts of men which finds expression at their own initiative. Whatever impetus the College possesses, it originates among the surgeons

themselves. It is not an extraneous force or an "uplift" movement. But rather, out of the widely divergent views on many subjects among the Fellows, the aims of the College rise as those time-tried aspirations which are inherently the basis of all that is valuable in the vocation of surgery. The purposes of the College are concerned directly with matters of character and of training, with the betterment of hospitals and of the teaching facilities of medical schools, with laws which relate to medical practice and privilege, and with an unselfish protection of the public from incompetent service; in a word, they embody those ideals which have stood the test of centuries. Upon these the Fellows are united. These are the ideals which each Fellow, single-handed, has endeavored to foster, and the expression of them today through the College comes as a sort of mass-consciousness of the whole body of Fellows. The splendid fact is that the Fellows have grasped in an instant the meaning of the College by a process of fusion and they have gladly made sacrifices for its success.

As one comes into wide acquaintance with the Fellows of the College and catches some fair notion of their earnestness, he sees the future of the organization not by means of logic. There is something more subtle and potent than argument. A determined optimism carries a momentum of its own. Without a logical process it seeks concrete expression; and, more than this, it really recreates circum-

stances through all shifts of weather or play of incident with a certainty not excelled by an utterly rational course. The Fellows of the College, in their widely scattered districts, fuse their consciousness of the organization with a splendid hope in their hearts to advance all that is important and valuable in the profession. This very attitude of mind is the first promise for the future of the College. It is a promise that admits of no defeat. It is a pledge of loyalty to medical patriotism which means loyalty to the public welfare exercised through intellectual sincerity and scientific accuracy. It means a safeguard to the public, for it indicates where honest and adequate surgery may be found.

The possibility of the transmission of disease through the medium of dental instruments has probably been considered by every occupant of the dentist's chair. It constitutes one of the fears with which a patient is possessed the moment he adjusts himself for his period of treatment. Authoritative instances of the conveyance of contagion in this manner are extremely rare, its frequency not being determinable, although few will deny the possibilities of occurrences of this character.

The list of organisms which may contaminate dental instruments is formidable, but this does not mean that the diseases of which they are the causative factors necessarily ensue if they are accidentally carried into the mouth. Their presence upon dental instruments is, however, an indication of what the surgeons call poor technique. In surgery poor technique is usually attended with disastrous results, but in dentistry errors of this character may produce no ill effects. In spite of this relative freedom from danger, dentists are determined that their methods shall equal the highest standards.

Cleanliness should be the primary consideration in all dental operations. The white

coat of the operator represents more than comfort; it is the symbol of neatness. The dentist who works with unclean instruments, who provides soiled linen, or who places a common drinking glass before his patient, should be judged accordingly. Fortunately the members of the profession who do these things are criticized and suffer from loss of patronage, so that there is a strong tendency on the part of dentists to maintain their surroundings above reproach. With the sterilization of instruments some carelessness may manifest itself, partly owing to the fact that many instruments are injured by such processes, are too complicated to be treated in this manner, or that the public is not competent to detect errors of technique. However, the public is rapidly learning the value of aseptic methods and the proper equipment is now found in nearly all dental offices.

Thorough studies of the sterilization process have recently been made for dentists by the United States Public Health Service, at the request of various dental associations throughout the country, and in a recent publication of that Service detailed information will be found as to the accepted methods for the sterilization of all dental instruments.

IMPROVING CANCER STATISTICS IN THE UNITED STATES

Special Report to Be Made by U. S. Census Bureau. Detailed and Accurate Figures Being Gathered.

At the suggestion of a number of the foremost American students of the cancer problem, the United States Bureau of the Census has instituted radical improvements in the collection and publication of the statistics of this disease. A special report on deaths from cancer in the United States during the year 1914 is in preparation and will be issued shortly after the first of the year. Inquiries recently received by the Director of the Census having indicated that some misapprehension has arisen in regard to the purpose and scope of this study, the American Society for the Control of Cancer has issued a statement explaining the significance and essential features of this project of the Census Bureau

which is thought not only to promise important additions to our knowledge of cancer but to constitute a noteworthy advance in the registration of American vital statistics.

It should first be made clear that the Census Bureau has not undertaken special research work that will in any way duplicate the studies of existing institutions and laboratories which are investigating the cause of cancer. On the other hand, there should result a marked improvement of our national mortality statistics of this disease in the direction of great accuracy and more detail. The experience of foreign countries has shown the value of perfecting and carefully analyzing the annual statistics of deaths in order to throw new light upon the cancer problem, which still remains the chief outstanding question in the realm of medical science.

In February, 1914, the American Society for the Control of Cancer suggested to the Federal authorities that the figures of deaths from cancer in the United States Registration Area be published in greater detail, and that instead of being reported under only seven headings, as had been the custom hitherto, they be listed under many more titles according to the part of the body first affected, thus affording opportunity for more exact comparative study. The suggestion received favorable consideration by the Bureau of the Census, and a special report for 1914 was ordered begun by the former director, Hon. William J. Harris, and is now nearing completion under his successor, Hon. Som L. Rogers. This special monograph on cancer will consist of tables showing the deaths from cancer, according to the site of the disease, age, sex, color, nativity and marital condition, for the registration area, the several registration States and the usual subdivisions. Figures for white and colored will be shown separately for such counties and towns as have a colored population of 10,000, or at least 10 per cent. of the total. The new plan subdivides the seven titles for cancer in the International List of the Causes of Death into twenty-nine headings referring to the exact site of the disease. For instance, all deaths from "cancer and other malignant tumors of the buccal cavity" will now be reported under the separate subdivisions for cancer of the lip,

tongue, mouth and jaw, and similarly with the other groups.

Upon the further suggestion of a prominent surgeon the Census Bureau also planned to increase the accuracy of the statistics by tabulating separately the returns in which the diagnosis was "reasonably certain" and those in which it was "uncertain." In arriving at this distinction a report is classed as "certain" if the diagnosis was confirmed by microscopical examination of tissues, or by surgical operation, or by autopsy. All cases of internal cancer in which the diagnosis was based on clinical observations alone are classified as "uncertain" regardless of any strength of assertion by the physician that the diagnosis was correct. At the request of the Census Bureau an advisory conference, including representatives of the Harvard Cancer Commission the George Crocker Special Research Fund of Columbia University, the Barnard free Skin and Cancer Hospital of St. Louis, the New York State Institute for the Study of Malignant Disease, the Prudential and Metropolitan Life Insurance Companies, the American Association for Cancer Research and the American Society for the Control of Cancer, considered the details of the plan and assisted in the formulation of instructions for editing certificates of deaths from cancer in preparation for the special report. To gather the necessary detailed information the Director of the Census has sent over 35,000 letters of inquiry to physicians who certified deaths from cancer during 1914.

Although a large amount of additional labor has been thrown upon the Division of Vital Statistics of the Census Office by the preparation of this report, it is believed that the trouble and expense will be more than repaid by the result. The improvement of cancer statistics has practical bearings of greater consequence than may at first appear. Indeed, the importance of statistical investigation in arriving at the solution of the cancer problem is likely to be overlooked. Much of the valuable knowledge of the disease which we possess today has resulted from the collection and comparison of statistical data, and this method must be relied upon, side by side with experimental research and clinical observation, to elucidate the baffling problem of the nature and cause of this disease. The

publication of this report by the Census Bureau should bring out new and useful information as to the prevalence of the disease in the United States and thereby contribute to the better understanding of its controllable features. Such a study as the Census Bureau is making, if continued, should also throw clearer light on the question of whether or not cancer is really increasing. The foremost authorities have repeatedly urged that this question can be scientifically answered only by studying separately the facts in regard to each of the many forms and sites of malignant disease. The Imperial Cancer Research Fund has co-operated with the Registrar-General of England and Wales in a thorough analysis of the detailed figures for cancer of the stomach, cancer of the tongue, cancer of the breast, etc., for successive years. By the progressive action of the Director of the Census similar data as to parts of the body affected on which such studies can be made will now become available for the first time in the official statistics of the United States.

The new plan will not only produce data for the year 1914, but every future year a vast amount of information will be recorded and stored away, and can be compiled and published when the demand warrants. Efforts are also being made further to co-ordinate the work of the State and Federal statistical offices for the better registration of deaths from cancer and other diseases as well. By the operation of this plan and the mutually supplementary efforts of the national and State registration officials, it will be possible permanently to record and study the extensive American data on cancer mortality, with all the detail required by the most exacting statistical methods.

NEW LICENSES.

The following licenses were issued at the last meeting of the Board of Medical Examiners:

Upon Credentials

Dr. W. E. Addis, Graduate of University of Kentucky, 1905.

Dr. W. B. Edwards, Graduate of University of Kentucky, 1907.

Dr. W. B. Cantrell, Graduate of University of Tennessee, 1915.

Dr. Guy Brelsford, Graduate of Marion

Simms, 1903.

Dr. L. L. Elliott, Graduate of Geo. Washington University, 1910.

Dr. J. A. Bowling, Graduate of Kansas City Med. College, 1888.

Dr. Frank Moseley, Graduate of University of Tennessee, 1915.

Dr. F. Van Orsdale, Graduate of Med. College of Ohio, 1902.

Dr. G. H. Buer, Graduate of Tulane University, 1898.

Dr. H. H. Clark, Graduate of Physicians & Surgeons, Chicago, 1893.

Dr. W. H. Harris, Graduate of University of Kentucky, 1905.

Dr. F. L. Bronson, Graduate of Northwestern Univ. of Chicago, 1908.

Upon Examination

Dr. F. H. Johnson, Graduate of University of Chattanooga, 1913.

SOCIETY MEETINGS.

The December meeting of the Bernalillo County Medical Society was held by invitation at the Cipes Sanatorium on December 1st.

The paper of the evening, Pella-gra, by Dr. W. G. Hope (published in this issue of the Journal) was followed by a general discussion.

After the annual election of officers the well attended meeting adjourned to an excellent entertainment, followed by a lunch.

The following officers were elected:

President—Dr. W. R. Lovelace.

1st Vice President—Dr. J. S. Cipes.

2nd Vice President—Dr. A. G. Shortle.

Secretary—Dr. F. E. Tull.

Treasurer—Dr. S. G. Von Almen.

Corresponding Secretary—Dr. E.

F. Frisbie.

Censors—Dr. W. G. Hope (1 year), Dr. L. G. Rice (2 years), Dr. O. T. Hyde (3 years).

Delegates—1 year: Drs. G. S. McLandress, F. E. Tull, J. A. Reidy; 2 years: Drs. M. K. Wylder, E. Osuna.

Grant County Medical Society has elected the following officers for 1916:

President—Dr. E. S. Bullock.

Vice President—Dr. O. J. Westlake.

Secretary—Dr. T. J. Cummings.

Censors—Drs. I. D. Loewy, F. P. Whitehill and C. S. Guthrey.

The society will meet on the last Wednesday of each month.

A program committee was named and consists of Drs. E. A. Duncan, T. J. Cummins and F. P. Whitehill.

The McKinley County Medical Society has elected the following officers for 1916:

President—Dr. J. W. Stofer, Heaton.

Vice President—Dr. A. H. De Long, Gallup.

Secretary—Dr. Wm. Hutchinson, Gibson.

Treasurer—Dr. J. M. Boyle, Gallup.

Delegate—Dr. A. H. Wilson, Gallup.

Censors—Dr. J. W. Stofer, Heaton; Dr. W. B. Cantrell, Gallup; Dr. C. A. Pratt, Gallup.

Original Articles

THE USE OF FREE OMEN- TAL GRAFTS IN ABDOM- INAL SURGERY.

LEONARD FREEMAN, B. S., M. D.
F. A. C. S.
Denver, Colo.

Read before the section on Surgery of the 34th Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 7-9th 1915 and published jointly with *Annals of Surgery*.

Although the omentum is constantly before the abdominal surgeon, even in his way, there seems to be a general failure to recognize the important surgical uses to which it may be put, and especially is this true of free omental grafts. It is therefore worth while to emphasize this subject, because all those who do work within the abdomen should be equipped for every emergency.

A well known function of the omentum is its almost intelligent inclination to seek out and attach itself to raw or inflamed surfaces, wrapping itself around them in such a way as to afford a maximum of protection. When the inflammation has subsided or the need for protection has ceased, these adhesions tend to disappear, however firm and voluminous they may be; so that if the abdomen is again opened, slight if any vestige of them

will be found. Every surgeon must be familiar with this striking phenomenon. In other words, Nature uses the omentum within the peritoneal cavity much as a surgeon employs adhesive plaster or a dressing externally—for temporary protection only.

This marked inclination of the intact omentum to adhere to its soundings is also possessed by free omental grafts, which always may be transplanted with great certainty except in the presence of actual suppuration. When this fact is thoroughly appreciated the way is open to a variety of useful and even life-saving plastic procedures, such as the replacement of lost portions of peritoneum, the prevention of adhesions, the strengthening of suture lines, the occlusion of the pylorus or of the intestine, and the checking of hemorrhage.

The replacement of lost portions of peritoneum.—When this can not be done with peritoneum itself, by means of flaps, folds, or convenient transplants, an omental graft of any desirable size may be employed. The necessity for such grafting may arise anywhere in the abdomen, and the covering in of a large or even small raw surface may sometimes prevent subsequent complications due to inflammations or adhesions. The advantage of using a free graft rather than an attached portion of omentum is obvious, because the latter may give rise to entangling bands or to injurious traction upon the colon, the duodenum or the stomach—in fact, I have seen a death from acute dilatation of the stomach

arising from a pull of this kind. In addition, when the omentum is permanently attached to a certain spot, its action is prevented in other portions of the abdomen where it might urgently be required.

In a number of instances I have used an omental graft to cover the large raw surface resulting from the "unfurling" of a Lane's Kink, and I wish to emphasize the advantage of this and especially the security against recurrence thus obtained.

The prevention of adhesions.—This is a question which has given rise to much controversy, the very multitude of suggested methods serving to cast doubt upon the reliability of any particular one. However, the experiments of Sweet, Chaney and Willson (1) upon dogs, and the observations of Iselin (2) and others seem to show that the formation of permanent adhesions undoubtedly can be prevented by the use of omental grafts.

Although this may seem paradoxical at first thought, because of the tendency of omentum to form adhesions, it ceases to be so when we remember the equally decided inclination of these adhesions rapidly to disappear when the irritative cause has subsided. In this connection an observation made by Iselin (2) is of much interest. He covered a raw peritoneal surface upon the mesentery with a free omental graft the size of the palm of a hand, and at an autopsy made seven days later the transplant was found not only grown in place, but its surface was glistening and free from adhesions. I frequently have

employed transplants from the omentum to replace lost portions of the intestinal peritoneum resulting from the separation of adhesions, and although I have had no opportunity of checking up the final results by autopsy, they have nevertheless always been satisfactory.

There is but little reason to suppose that dead membranes of any kind, such as Cargyle membrane (prepared peritoneum of the ox), or amniotic membrane (recently suggested by Lyman, of Denver), act otherwise than irritating foreign bodies, producing adhesions rather than preventing them, as has been demonstrated by experiments on animals made by Craig and Ellis (3).

The strengthening of suture-lines in operations upon the stomach and intestines. — Free omental grafts are well adapted to this purpose, especially in the absence of great tension or of actual gaping of the wound. When these are present the use of fascia lata is perhaps to be preferred, as it also is in certain resections of the rectum and colon. The size of the transplant should be sufficient to reach well beyond the line of suture on either side, so as to obtain a firm hold upon the adjacent surfaces, and security against displacement must be assured by numerous catgut stitches.

Pyloric and intestinal occlusion. — A band formed from a free omental graft may be employed to close the pylorus in gastroenterostomy or to exclude portions of the intestinal tract, such as the proximal colon in ileosigmoidostomy. For such pur-

poses the omentum divides the honors with fascia lata and the round ligament of the liver. The method of use is to twist a strip of omentum into a cord which is passed once or twice around the distal end of the stomach or around the bowel, drawn tight and held by appropriate sutures. Such living ligatures do not have the same tendency as do other kinds to become absorbed or to cut their way into the lumen of the bowel; but they rather incorporate themselves with the surrounding tissues thus insuring more or less permanent results.

The checking of hemorrhage, from raw surfaces, especially of the liver, spleen and pancreas, is an important use for free omental grafts which can not be too strongly emphasized and which I am sure is not sufficiently well understood.

An omental graft when spread upon a bleeding surface of a parenchymatous organ at once checks the oozing however free it may be, sometimes even if spurting vessels of some size are present. This is a fact first recorded by Loewy, in 1901, and since then substantiated by many observers, including the writer, both in the laboratory and in the operating-room. The phenomenon is due, perhaps, partly to mechanical effect, in the shape of mere adhesion, and partly to a biochemical activity causing coagulation, which the omentum is supposed to possess in common with certain other tissues such as fat, muscle and fascia.

It is scarcely necessary to call attention to the great usefulness of

the procedure in various accidental and operative wounds of the liver and spleen. In rupture, for instance, an omental graft may be used as a tampon in place of gauze, to which it is immeasurably superior, because it is more effectual and is less likely to cause infectious difficulties and necrosis of the tissues.

Wound surfaces remaining after cholecystectomies may generally be closed by catgut sutures, but occasionally this can not be done and great difficulty is experienced in checking the oozing which is at times alarming. Under such circumstances an omental graft pressed upon the denuded area will at once produce hemostasis which is both reliable and permanent. In fact, the abdomen may often be closed without the usual gauze packing, so difficult and painful to remove and so often leading to troublesome after-effects such as infection, hernia, and prolonged convalescence. An end of the same graft may also be used to cover the stump of the cystic duct, thus helping to insure against leakage. Of course a sufficient number of catgut sutures must be inserted to guard against shifting of the transplant; and where an actual wound of the liver is present the living tampon should often be sewed in position by sutures which penetrate deeply through both the liver and the inserted omentum.

With such a reliable aid to hemostasis I feel sure that surgeons often will no longer content themselves in difficult cases with inef-

ficient cholecystostomies when a cholecystectomy is really indicated. In at least two cases, for instance, I have been able to control alarming hemorrhage and easily bring to a favorable termination an otherwise fatal condition.

The technique of omental grafting is very simple, but there are several precautions to be observed: (1) In tying off the graft a sufficient number of ligatures should be used so as not to pucker the pedicle into too much of a bunch. (2) The excision should be made as far from the base and as near the free border of the omentum as possible, and an effort made to avoid the larger vessels, for reasons mentioned further on. (3) No more tissue should be sacrificed than is actually required. (4) The grafts should always be held in place by a number of stitches of fine catgut, in order to guard against their shifting. Silk or linen sutures are unnecessary owing to the remarkable rapidity with which adhesion of the grafts occurs. (5) The transplant should entirely cover the raw area and project over the sound tissues on every side.

While recognizing in general the value of omental grafts, there are certain objections to them which should prevent us from employing them too hastily. They are of four kinds—(1) The production of multiple foci of hepatic necrosis; (2) the causation of gastric and duodenal hemorrhage; (3) the loss of a useful organ which might be required for other purposes; and (4) the production of a raw omental

stump capable of forming objectionable or even dangerous adhesions.

No one of these objections is, however, of much force, because the probability of their occurrence is remote to say the least. The greatest interest attaches itself to gastric hemorrhage (von Eiselberg) and hepatic necrosis (Friedrich). They are both probably due to emboli arising from thrombosis of the vessels following ligation of the omental issues.

According to Friedrich (4), if the thrombus is venous and extends upwards far enough to reach the right epiploic vein, emboli may be washed off and carried through the portal circulation to the liver. Small, multiple areas of necrosis are produced in this way possibly accompanied by jaundice, thus explaining obscure instances of icterus following abdominal operations. On the other hand, if the thrombus is arterial, it may travel backwards into the right epiploic artery and give rise to emboli which block the end-arteries of the stomach, causing gastric hemorrhage, usually of the "capillary" variety. It is also possible that ulcers might result in this way, as has been demonstrated by animal experimentation.

Out of a number of instances in which the omentum was ligated, I recall but two where capillary hemorrhage from the stomach occurred neither of which was serious in its results. In fact, such happenings "belong among the rarest clinical phenomena" (Friedrich), and when they do appear the prognosis is

usually good; but this should not prevent one from bearing them constantly in mind.

It is obvious from the above considerations that in ligating the omentum the larger vessels should be avoided, and that the farther the ligature is placed from the base of the structure the less the danger of a thrombus extending far enough to give rise to emboli. The anatomical peculiarity that the omentum is shorter in men than in women may have a bearing upon the interesting clinical fact that gastric hemorrhage has been observed almost exclusively in the male. When the omentum is unusually short, and it may vary between 7.5 and 70 centimetres, one should perhaps be more than usually cautious about interfering with its circulation.

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THE USE OF BONE TRANSPLANT IN FRACTURES.

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Read before the section on Surgery of the 34th annual meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 7-9, 1915.

On account of the frequent disability following fractures and probably more especially because the physician in charge is stimulated by fear of damage suits, we have been

trying to perfect a method to better adjust those injuries. Another reason that could be given is that the patient can so easily keep account of our work with the X-ray pictures that they all demand this day and time. Then again, we have the Employer's Liability Acts passed in so many of the States which show up in dollars and cents the bad results that we get in fracture work. This means much to the employers. When we realize that 60 per cent of these damage suits arise from deformities and disabilities following fractures, no wonder we are devoting so much of our time to the advancement of bone surgery.

The embryonic period of adjusting fractures by introducing supporting material and transplanting tissue dates back even before the time that Sir Arbuthnot Lane advocated the open method with the use of steel plates. In 1888, McEwen transplanted bone into the lower end of a right humerus that had been shattered, as it was a gun-shot wound in a young boy. The transplant grew much in length as well as in circumference. In 1902, I reported a case of a man in whom I had transplanted five and one-half inches of bone in the tibia with a good result. This bone transplant was taken from a dog by means of a vascular attachment. These methods have given excellent results in many cases, but are open to numerous criticisms. Any non-absorbable substance buried in the tissues has a tendency to irritate and make more difficult the healing of the wound by primary union.

With the use of steel plates, we have something that acts as a foreign material. They often break, and are also prone to stimulate excessive callous from the bone, which invades the surrounding tissue. Then from pressure these metallic plates sometimes cause absorption at the fractured ends of the bones and at the point of penetration of the screws.

It is my opinion that a fractured bone is the last place in the body where we should use foreign material and it will soon become a thing of the past as in the case of the Murphy Button, silver wire, metallic plates in the skull, etc.

We have come to the stage in bone surgery where we have perfected a method of giving mechanical support and at the same time grafting into the part the little bone cells that will finish the work that we have started. In this method, we are not introducing anything into the wound excepting the normal tissue of the body. This process cannot help but give satisfactory results as it is nature's own method.

With a good electric motor, drills, saws, and a dowel as recommended by Alba and clean aseptic surgery, it predisposes to normal mending of the bone.

I usually recommend that the fractured parts be kept quiet for one week after adjusting the fracture, until the swelling has subsided and the hemorrhage has ceased. By this time the reorganization of the tissue has begun to take place and it has regained its vitality.

The skin around the field of oper-

ation is prepared by thoroughly cleansing with soap and water, followed by the use of iodine and alcohol. While I do not feel satisfied with this preparation of the skin, I am always careful that the skin is kept covered with gauze so that none of the material used in the wound may come in contact with it.

The patient is placed under spinal analgesia by means of tropacocain as this thoroughly relaxes the muscles, prevents shock and enables the patient to be of valuable assistance in adjusting himself during the operation and especially during the time of the application of the dressing and splints.

A long incision is made over the fractured bone. The skin is then covered to the edge of the wound of wound with gauze which is held by forceps attached to the wound. The muscles are separated as nearly as possible between the lines of cleavage and the ends of the bones are placed in approximation. This may be accomplished by relaxing the muscles of the art, by flexion or extension, or it may be necessary to elevate the two ends of the bones at an angle so that they are approximate and then press them in position. It may be necessary to resort to the compound pulley, or in old cases cutting of the ends of the bones before proper approximation can be made.

A groove is made in the ends of the fractured bone of two to three inches in length and a quarter to one half an inch in width. This is best accomplished by means of a twin saw which cuts the groove an equal

width all the way through to the medullary cavity. The ends are separated by means of a drill. The fragments are removed and placed in salt solution. They are then picked up with a strong forcep and pressed into the small dowel as far as it is to be rounded which is to be used for holding the bone transplant in proper position.

The inner and front aspect of the tibia of the injured leg is opened to the periosteum and a fragment of the bone is cut corresponding to the combined length of the two fragments removed from the space of the fractured bone and so adjusted that it will fit with an exact nicety. Holes are then bored through the fragment into the compact substances of the bone and are held in position by means of pegs made from the above mentioned fragments.

The hemorrhage is controlled as much as possible by crushing the blood vessels with heavy hemostats, otherwise they are ligaments by means of catgut. The muscles and fascia are closed by subcutaneous suture. The limb is dressed and placed in a proper fitting splint of plaster of Paris which must hold the limb so as to prevent too much contraction of the muscle.

The intercapsular fractures at the head of the femur are best treated by means of the bone peg or graft. This is readily performed by making a small incision just below and outside of the great trochanter and boring a hole through the bone

and fractured neck into the head of the bone. A fragment is removed from the internal surface of the tibia of the injured side as above described and passed through the large dowel which fits the drill opening made. This graft should be about three inches long and then driven into space.

The drill freshens the ends of the bone, if it be an old fracture, so that it simulates cell activity and favors union; the bone peg not only stimulates the activity of the bone cells in the adjoining structure, but it serves the triple function of immobilizing the fragments, of introducing a living structure, supplying osteoclasts and of stimulating the osteoclasts in the head and neck of the femur, which has a very low vitality.

The limb is placed in a proper fitting splint which keeps the parts immobilized so that it assists in protecting the transplant.

A new fracture so treated will unite in the ordinary time of a simple fracture.

The fractures so treated are not so susceptible to infection as when the metal plate and nails are embedded in the tissue and are not subject to other complications above mentioned.

In delayed or non-union, the steel plates and nails are absolutely contraindicated. In these cases the bone graft gives the sense of security which has never before been realized in the treatment of this condition.

IMPOTENCE.

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Read before the Bernalillo County Medical Society, November 17, 1915.

The power of copulation, or ability to properly perform the sexual act, is the normal condition of every healthy adult during the physiological period of virility. The loss of this power constitutes impotence, the broadest conception of which includes two varieties of sexual incapacity.

(1) *Impotentia generandi*, the incapacity to procreate, due to a pathologic condition of the semen, or to total absence of spermatozoa resulting from the destruction of the seminiferous tubules by bacterial invasion, trauma, etc., and

(2) *Impotentia coeundi*, the incapacity to consummate cohabitation by *intromissio penis in vaginam* due either to organic causes, to incompleteness, or absence of erection or to a precipitancy of the reflex act of ejaculation.

Both are strictly to be differentiated, for it is a well known fact that every coitus is not followed by fructification. While the first depends upon a pathological condition of the sperm, the latter depends upon an imperfect *libido*.

Impotentia generandi is ordinarily associated with a completely normal *potentia coeundi*. In this form we are consulted but rarely, except in cases in which there is a desire, or cause, for offspring; otherwise, I regret to say, it is a

very happy circumstance viewed from the standpoint of present day society. This form does not claim the attention of the layman, or physician, as does *impotentia coeundi*, which becomes of greater moment than the fruitlessness of marriage or sterility. The psychic state of these poor pitiable patients often drives them into the arms of despair and suicide. The psychic depression in them is of a depth of which a layman with a normal *potentia sexualis* and even physicians have no conception.

Impotentia coeundi may be absolute or relative; there may be a permanent absence of virility, or merely a temporary abeyance of this power. It may depend upon abnormal physical conditions which act as mechanical obstacles, such as malformations, etc., of the organs, or it may result from disorders of the nervous and muscular systems concerned in the mechanism of the complex act of erection and ejaculation. The subjects of impotence are often endowed with strong desires and the mechanism of erection is normal, but there is simply an inability to perform the sexual act, except under certain conditions, or with individuals who in some unexplainable way transmits the stimulus and the impotent is potent with that certain individual.

In the large proportion of cases impotence is essentially an ataxia of the genital system characterized by incoordination of the expulsive and retentive muscles. This disordered action is due to a disturbance of the equilibrium of the motor in-

fluences emanating from the brain, the sensory nerves and the reflex spinal centre.

Under organic impotence are grouped various defects, mutilations, malformations and vicious directions of the penile organ, which physical conditions preclude the possibility of successful sexual intercourse.

In psychical impotence the individual may have all the appearance of virility, with strong sexual desire, yet when he attempts sexual intercourse he fails from a nervous appreciation of his inability to perform the act. In consequence of the high degree of nervous excitement, the inhibitory action of the brain over the genito-spinal centre is intensified and erection fails at the critical moment. No fact better establishes the controlling and dominating influence of the mind over the genital function than the existence of this neurosis.

Relative impotence is the inability to perform the sexual act with certain women, while with others it may be normally consummated. In this class are to be found those unfortunates who are bordering on, or have crossed the line into perverted sexual desires and acts. In these sections it is reserved for the *veru* cases it is the impulse-direction not the *potentia* that is affected.

Irritable, or pathologic, impotence is due to an irritable weakness of the genital organs, with abnormal excitability of the reflex centers. The inability to have a powerful and lasting erection, and prema-

ture ejaculation, are the distinguishing features of this form. There may be only feeble desire, the erection may be partial, irregular, or of such short duration that the ejaculation of semen takes place before intromission. In another class of cases sexual desire and erection are strong and penetration possible, but ejaculation takes place prematurely, during or immediately after intromission, rendering satisfactory intercourse impossible. In this form on account of the impaired erection-capacity, and the impossibility of all normal sexual activity, the patient will consult a physician sooner than in the others.

Impotence has a most diverse etiology; many constitutional, as well as local factors are concerned in its causation. In certain cases it is merely a symptom of some constitutional state, or the expression of a nervous disorder, which later may manifest itself in the graver forms of epilepsy, or insanity. In view of the sympathetic lines which unite the genital and nervous systems it is not surprising that functional disorders occur in connection with a great variety of nerve lesions, both peripheral and central. The morbid tendencies may be excited into action by either direct or reflex irritation of the most diverse character.

Masturbation is considered a most prevalent factor in the production of impotence, but not to the extent the charlatan utilizes it to play upon the mental state of his victim. This practice must be extreme and

extend over many years before such a condition is brought about.

A purely psychological factor that goes toward producing a functional impotence is fear of impregnation, of venereal infections, of failure to perform the act satisfactorily, and of discovery.

The morbid processes reducing the sexual power are the constitutional disturbances, and debilitating diseases, as the various anemias, diabetes, autointoxications, etc., except pulmonary tuberculosis in which there appears to be an increased *libido*.

By far the greatest number of cases have a true pathology. This group is subdivided into testicular lesions, urethral lesions, and spinal cord lesions.

Under the testicular lesions it should be remembered that there are two separate and independent processes at work in the testis—the manufacture of spermatozoa in the seminiferous tubules, and the production of an internal secretion by the interstitial cells, the exact nature of which is not known. One of these two processes can be destroyed without in any way altering the other. This is particularly true of extensive bacterial invasion whereby the tubules of both testes fail to yield any spermatozoa owing to the subsequent cicatricial contraction producing pressure atrophy of the tubular epithelium, yet leaving the interstitial cells, or the cells of the internal secretion unharmed, and still potency remains unchanged. It is the internal secretion that is essential in the produc-

tion of masculinity. So long as some of these internal secretory cellular structures continue to function properly, and there is an absence of other pathological conditions, the masculine type is preserved. Whether or not there exists a congenital impotence due to non-development of the interstitial cells is not known, but that there is such a condition is highly possible. In addition to pyogenic infections, trauma, syphilitic gumma, neoplasms, and tuberculosis destroy both the germinal and internal secretory cells of the testes.

Urethral lesions are probably responsible for the majority of the cases of impotence. Foremost, is posterior gonorrheal urethritis of long standing, especially in neglected or maltreated cases. The next of importance ranks the colon bacillus, which finds its way into the urethra either through coitus or by direct extension from the constipated lower bowel.

In these posterior urethral *inmontanum*, a small ridge of mucous membrane lying in the floor of the prostatic urethra, to play the leading role in the production of organic impotence. As yet it has not been explained why this structure, when slightly enlarged or inflamed, should so completely upset the sexual equilibrium. This simple ridge of mucous membrane in the normal state, richly supplied with blood vessels and lymphatics, is the seat of congestion during each erection. The engorgement with blood which at first produces an active hyperemia, and which later becomes

passive, persists during the quiescent state of the urethra and penis, granulations quickly form, and before long, instead of an insignificant ridge of mucous membrane, it is transformed into a large angry looking mass of tissue. These granulations bleed easily and frequently produces a profuse hemorrhage which may be difficult to control.

Sexual excesses and abuses, the pernicious habit of indulging in coitus interruptus, frequent excitement without gratification, are all factors in producing enlargement and congestion of the *veru montanum*.

Then again the *veru montanum* may present quite another picture, instead of finding a prominence, there is a distinct atrophy of this little eminence of the prostatic urethra; in place of chronic hyperemia, granulations and hemorrhage, there is a distinct widening of the utricle, loss of contractility, and pronounced anemia of the mucous membranes, not only of the region of the *veru montanum*, but also of the entire posterior urethra, produced by masturbation, sexual excesses, vicious habits, chronic alcoholism, drug habit, etc.

Seminal vesiculitis, either in the acute or chronic form, is frequently conducive to painful organism, which affects the *libido* and so reduces the potency of the individual.

Any destructive process of the spinal cord involving the erector fibres will destroy the sexual power—locomotor ataxia heading the list.

The prognosis and treatment of

impotence varies according to the pathological condition present.

In psychical impotence the prognosis is uniformly favorable. The subjects have ordinarily a normal genital apparatus with strong desire and erection, the trouble lies in the fact that the nervous excitement is so exalted as to nullify the power of erection during the act of coitus. The treatment of this form requires the most unlimited amount of patience. The first point is to obtain the complete confidence of the patient; give him your sympathy; assure him that there is something the matter with him, and that there is a good chance for a cure, or at least to improve his condition. In all probability he has been through the hands of several medical men, as well as the charlatan, the faith-healer, and the Christian Scientist. Make sure that there is no real pathological condition. In the absence of any organic lesion, the treatment is one of instituting a regime of good hygiene, regular habits, strict sexual abstinence both mental and physical; simple tonics; attention to the bowels, and occasionally the passage of a cold sound and light prostatic massage. The latter more for the psychic effect than for any actual therapeutic benefit. These patients are suffering from a distinct form of neurasthenia and must be led in every way.

The prognosis in the inflammatory conditions of the urethra is scarcely less favorable than the psychic form. By far the greater number of premature impotents have a chronic inflammation of the

veru montanum, which is fortunate, because the results obtained are most gratifying. We can without fear, within the safe age limit, give a favorable prognosis. The treatment consists in removing the cause, regulation of the bowels as hardened feces in the rectum increases the congestion in the prostatic region, diet, and local applications to the *veru montanum* through the endoscope. During the treatment coitus must positively be prohibited.

Relative impotence is almost hopeless, except in cases where the patient accidentally comes in contact with the woman having the necessary affinity to produce the stimulus.

In cases of atrophy of one or both testes, without an associated lesion, the outlook is bad, as there is no treatment that will improve sexual power under such circumstances.

PELLAGRA

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Read before the Bernalillo County Medical Society, December 1, 1915.

First recognized in 1735 by Casal in Spain, pellagra did not have a name until 1731 when Frapoli, of Milan, combining pellis (skin) and agra (rough) formed the term that best describes the condition and which has survived to this day, in spite of many synonyms, all of which are descriptive of some spe-

cial feature or characteristic of the disease.

There is a long interval following the first recognition of pellagra in the United States by Tyler in 1865. His classic description of two cases observed in Summerville, Massachusetts, remained merely an interesting contribution to current medical literature for more than forty years.

About 1907 there came its recognition in various states.

Babcock of South Carolina, who came in contact with many cases, visited Italy and acquired knowledge at first hand from the master of the disease, Lombroso. Returning to the United States he called a state conference in Columbia, South Carolina, which was attended by more than three hundred physicians representing twenty states. A national organization was organized on the spot and Babcock was its first president.

The Governor of Illinois named a pellagra commission headed by Dr. Frank Billings and the Surgeon Generals of the Army of the Public Health and Marine Hospital Service, sent Captain Siler and past assistant surgeon Lavinder to Italy to make observations. If there was a disposition anywhere to minimize the prevalence of pellagra, the Conference quickly dispelled it, as representatives from one state after another reported the disease in their respective localities.

It is quite certain that pellagra has existed in the United States many years. Wherever it is recognized someone recalls a death that

occurred under strikingly similar circumstances a number of years previous.

Pellagra is now being reported officially from every state in the Union. In 1910,

Georgia reported 2000 cases,
North Carolina 2000 cases,
South Carolina 1000 cases,
Florida 100 cases,
Illinois 300 cases, 125 dead,
Iowa, 3 cases, all dead,
Kentucky 30 cases, 8 dead,
Mississippi 500 cases, high mortality,
Pennsylvania 210 cases,
Virginia 400 cases, 200 dead,
Washington, 2 cases, both dead.

CAUSE AND TREATMENT.

In October of this year, Goldberger of the United States public health service, and his associates published experimental causes of pellagra in human beings as well as the cure and prevention of the disease among three groups of persons widely separated from each other geographically.

As a result of his studies Goldberger had concluded in effect "That Pellagra is not a communicable disease; that it is dependent on some as yet undetermined fault in diet, in which the amount of leguminous vegetable component is disproportionately large; and that no pellagra develops in those persons who consume a mixed, well balanced, and varied diet."

Having observed the benefit derived from dietary treatment prescribed by Lorenz and others, Goldberger and his associates began a

series of feedings to confirm their findings.

The first series of these experiments to cure and prevent pellagra was begun in two orphanages in southern Mississippi September, 1914. Up to September 1914, there had occurred among the inmates of one of these institutions seventy-nine cases of the disease among a total population of about two hundred inmates and employes.

September fifteenth, the diet of both institutions was supplemented by a very decided increase in the proportion of fresh animal and leguminous foods. This increased diet has continued to date of his report, about October 15, 1915.

Of these cases sixty-seven in the first institution and one hundred five in the second institution were continued under observation by the investigators for more than one year, and in only one case was there evidence of the recurrence of the disease following the change in diet mentioned.

Among the residents of these orphanages who had not had pellagra in 1914, a total of ninety-nine and sixty-nine, not one developed the disease subsequently. In other words, in these two institutions with a total population of approximately four hundred and twenty, about fifty per cent had pellagra in 1914. The disease entirely disappeared following the use of the supplemental diet, and in one case only has there been a recurrence.

Similar experiments were carried out on the inmates of insane institu-

tions. The results were similar to those of the orphanages.

In order to best further the relation of diet to pellagra, Goldberger and Wheeler undertook to produce the disease among convicts who had volunteered for this experiment on promise of a pardon.

Beside the twelve volunteers there were about seventy controls, twenty of whom were kept under special medical guard throughout the period of the experiment, that is from February 4th to October 31st, 1915.

There had been no history of pellagra in this camp. The volunteers were segregated strictly, kept under guard night and day from February 14th to April 19th, no change of diet was made, and on careful routine examination no evidence of pellagra was detected. At noon April 15th, the diet was changed, and a diet similar to the diet of the pellagrous children of the orphanage was given.

The sanitary conditions of the volunteers and the controls were the same, but the personal cleanliness and freedom from insects and vermin were in favor of the volunteers. Of the eleven volunteers (one had been discharged for other illness) six developed pellagra.

These experiments demonstrate that pellagra is a nutritional disease, but they do not single out any particular article of food.

An editorial in a recent number of the *American Medical Journal*, after reviewing Goldberger's ex-

periments, says: It remains therefore to determine by further dietary and laboratory studies which will of necessity be of a highly technical nature, the deficient or disproportionate elements in diet responsible for pellagra.

Judging by the advancement made recently, the problem will be solved soon. In the meantime, there is invariably a practical means of prevention and cure, and to Goldberger and his associates great credit is due for their work. In view of the increased prevalence of pellagra, and the fact that seventy-five hundred people will die of the disease in the United States during the present calendar year, the value of their studies from both public health and economic standpoints may be compared to those of the discovery of the relation of diet to beriberi or the mosquito to the transmission of yellow fever.

Case. J. M., male, forty-seven years old. Father American, mother Mexican. Taken ill April 15, 1914. Came under my observation August 12th, 1914. He was very much emaciated, erythematous, scaly eruption on both hands, both forearms, both feet, both legs. Temperature 97 to 99. Pulse 90 to 120. Ptyalism. Severe pains in spine and head. Great restlessness and mental confusion. Anorexia. Diarrhoea, bowel actions four to eighteen daily. Was under my observation from August 12th to about September 28, 1914, when he returned to his home at Cubero, New Mexico, and three weeks later there died. Diagnosis: pellagra. Treatment: arsenous preparations and liberal mixed diet.

Doctor Cornish saw the patient with me and agreed that it was a case of pellagra.

REPORT OF A CASE OF PERI- PROSTATIC ABSCESS OF TUBERCULOUS ORIGIN.

F. H. McKEON, M. D.,

Past Assistant Surgeon, U. S. P. H.
S., Fort Stanton, N. M.

Read before the Second Annual Meeting of
the Southwest Medical and Surgican Association,
El Paso, Texas, Dec. 9, 10, 11, 1915.

Tuberculosis of the prostate gland is not very rare either as a primary or secondary infection. It is usually accompanied by tuberculous disease of other parts of the urogenital tract, but may be seen alone. Saxtorph found nine out of two hundred and five cases of urogenital tuberculosis, examined at autopsy, in which the disease was present only in the prostate. In twenty-five cases of genito-urinary tuberculosis reported by Young (1), ten were thought by him to have been primarily in the prostate, although in every case the disease, when seen, had spread either to the seminal vesicles or to the urethra. Bonney (2) says that involvement of the prostate is exceedingly frequent in genito-urinary tuberculosis and is, undoubtedly, more common as a primary infection than was formerly thought to be the case. He is inclined to attribute primary disease to infection by the way of the blood channels. Pelouze (3) recently reported nine cases of "prostatic growths," probably tuberculous, occurring in persons having evidences of a coexisting pulmonary tuberculosis. The growths, however, were confined to the pros-

tatic urethra, and he does not think that the condition extended very deeply into the prostatic substance in any case. Baumgarten, as quoted by Young in Keen's Surgery, holds that the spread of tuberculosis in the genito-urinary tracts was always with the secretion stream, and that the prostate thus became infected from tuberculosis of the kidney and also the epididymis, but never the epididymis from the prostate. In our case, the epididymis on the side on which the prostate was enlarged was tuberculous and it would seem that it was the genito-urinary structure primarily infected.

Our case is reported because of the difficulty experienced in making a diagnosis and of certain unusual features it presented.

The diagnosis of prostatic tuberculosis when frequent and painful urination, hematuria or obstructive symptoms point to trouble in the genito-urinary tract, is comparatively easy. When, however, as in our case, the symptoms are less clear-cut and are not necessarily indicative of urogenital disease, one may easily fail to make an early correct diagnosis unless he is in the habit of making a routine examination of the prostate in all obscure cases. And here it is desired to emphasize the advice to examine the prostate whenever difficulty in diagnosis is experienced whether in general or in special practice, and especially when pain in the lumbar region or thighs does not respond to ordinary methods of treatment.

With these rather trite remarks.

the case is herewith presented.

The patient, a seaman of American birth, aged 38 years, was admitted to Fort Stanton for treatment of pulmonary tuberculosis, October 16, 1914, and was classified as a far advanced case. His family history was negative except that his wife had died of tuberculosis. Previous to his transfer, he had been under treatment for eighty-three days at the U. S. Marine Hospital, New York. He gave a history of having had scarlet fever in childhood, malarial fever in 1911, and two attacks of gonorrhea; one in 1905, complicated by arthritis of the left knee, and the second in 1909, which was accompanied by orchitis. The clinical record transmitted from New York showed that he had had a chronic urethral discharge; this had ceased, however, when he came under our observation. He denied syphilis. He had been a heavy drinker and a large consumer of tobacco. While in the Marine Hospital at New York, he had what he described as an attack of lumbago, and was treated with the cautery, which afforded him much relief. During the first four months that he was under treatment at Fort Stanton his progress was generally satisfactory, and following our system he was put on light graduated exercise. In April of this year (1915), he began to complain of pain in the lower lumbar region, in the suprapubic region and in the adductor regions of both thighs. The pain at first was not at all severe, amounting to scarcely more than a discomfort, but gradually became

worse. Inasmuch as muscular pains in tuberculous subjects are not infrequent, especially at high altitudes, no great importance was attached to the symptoms at first. His temperature, which had been generally normal, now showed a slight afternoon rise, daily, which was ascribed to his pulmonary tuberculosis. A careful examination seemed to exclude disease of the vertebral column. When his complaints grew more frequent, however, relief was attempted by administering the usual remedies for myalgia. These were unavailing, the condition growing rapidly worse until within a few days he was unable to walk. At this time the prostate was examined. The right lobe was found to be enlarged and nodular, but only moderately tender. The epididymis on the right side was indurated and slightly nodular. There were no subjective symptoms referable to this structure, however, and it was considered that the pathologic process, of whatever nature was quiescent. In the light of his venereal history, a diagnosis of chronic prostatitis was made; the milkings when stained showed staphylococci in large numbers and a few streptococci, but the diplococcus of gonorrhea was not demonstrated. He was given systematic prostatic massage, followed by irrigation of the urethra and bladder with a 1:60000 solution of bichloride of mercury. In addition, a stock vaccine of gonococci and staphylococci was administered. The treatment was kept up for six weeks without improvement

of his symptoms. The daily fever was higher and the pain, especially in the right thigh, more severe.

During one of the patient's daily visits to the surgical pavilion, the attention of A. A. Surgeon Keiller was invited to his case.

Dr. Keiller, as most of you know, is Professor of Anatomy at the University of Texas. Because of a slight tuberculous infection, he serves as an acting assistant surgeon at Fort Stanton during the summer months, and it is my highly valued privilege to be associated with him in the surgical work of the station; the operative procedures about to be described were done by him.

During the course of his examination of the patient, Dr. Keiller detected a slight bulging in the right groin in the situation that a psoas abscess usually appears. Aspiration was done, pus recovered and drainage established. Microscopical examination of the pus revealed the presence of tubercle bacilli. At first it was thought that the condition was entirely separate and distinct from the prostatic trouble. No marked relief resulted, however, but instead bladder symptoms consisting of frequent and rather painful urination and tenesmus supervened. The flow of pus from the femoral incision, which had been fairly profuse for a few days, suddenly ceased. In attempting to reestablish drainage it was found that the cavity, instead of leading toward the iliac fossa as had been thought was the case, led toward the true pelvis. This at once suggested a connection with the prostate, and

under general anaesthesia a suprapubic incision was made down to the gland. An abscess was found in the region of the right lobe and communication between it and the opening in the groin seemed to exist through the obturator foramen, since when pressure was made in the vicinity of the abscess pus appeared in the femoral wound; free drainage from this incision as well as through the suprapubic opening was established. At the same time, resection of the right vas deferens was done to prevent further extension of disease. The pus again showed the presence of the tubercle bacillus and the same organism, or at any rate an acid fast bacillus, was demonstrated in the prostatic secretion obtained by massage a few days after the operation.

I wish here to quote from a letter I have received from Dr. Keiller concerning the case:

"The epididymis was probably the primary focus and the pelvic abscess may have come from the lower end of the vas, or even perhaps the seminal vesicle, although the physical examination pointed to the prostate. * * * The most probable line of spread from the prostate to the pelvic cellular tissue would be along the vas from its prostatic end. I was not able to make out the route from the pelvis to the obturator foramen. The abscess did not appear to be free in the pelvic cellular tissue, but rather to have encapsulated itself or expanded the prostatic sheath."

Following the second operation the patient at once began to improve and has gone on to practically complete recovery so far as the surgical condition is concerned. He still complains of slight stiffness after prolonged inaction. The apparent size of the prostate has been

greatly diminished. His phthisis does not seem to have been affected for either better or worse.

It is, I believe, customary in a paper of this kind to draw certain conclusions. However, I shall allow my auditors and readers to draw their own, which may not be very flattering to the writer, and content myself with inviting attention to the following points:

1. That prostatic tuberculosis is probably more common than is generally supposed.

2. That its early diagnosis is difficult, especially if the venereal history shows frequent attacks of gonorrhea.

3. That an abscess of the cellular tissue of the pelvis may point in the groin.

REFERENCES

1. Keen's Surgery, Volume IV.
2. Bonney. Tuberculosis and its Complications.
3. Pelouze, P. Starr. New Growths of the Prostatic Urethra in Relation to Tuberculosis. New York Medical Journal, October 16, 1915.

THE DOG AS A CARRIER OF DISEASE TO STOCK

The dog in the country is a useful and pleasant adjunct to the farm if he is properly controlled and cared for, but when neglected, may readily become a carrier of disease to stock, in addition to gaining opportunity to kill sheep and destroy gardens and other property. Dog ordinances, as a general rule, have been intended chiefly to curb the dog's power of doing harm by attacking, biting, killing or running sheep or stock. The part that he plays as a carrier of diseases to animals only recently has been recognized, according to the zoologists of the Department of Agriculture, who believe that when this is better understood, rural ordinances and

laws which lessen this danger will gain the support of the community.

Of the diseases carried to stock by dogs, the foot-and-mouth disease is probably of the greatest interest at this time. In this case the dog acts as a mechanical carrier of infection. The dog which runs across an infected farm easily may carry in the dirt on his feet the virus of this most contagious of animal diseases to other farms and thus spread the disease to the neighboring herds. In infected localities it is absolutely essential therefore, to keep all dogs chained and never to allow them off the farm except on leash.

There are, however, many other maladies in the spread of which the dog takes an active part. In Bulletin 260 of the United States Department of Agriculture, "The Dog as a Carrier of Parasites and Disease," it is pointed out that rabies, hydatid, ringworm, favus, double-pored tapeworm, roundworm, and tongueworm are often conveyed to human beings in this way. It occasionally happens also that the dog helps fleas and ticks in transmitting bubonic plague or the deadly spotted fever.

Hydatid disease is caused by the presence in the liver, kidneys, brain lungs, and other organs, of a bladder worm or larval tapeworm. Bladder worms are often as large as an orange and may be larger. A dog which is allowed to feed on carrion or the raw viscera of slaughtered animals may eat all or part of a bladder worm containing numerous tapeworm heads. These tapeworm heads develop into small segmented tapeworms in the intestines of the dog. The tapeworms in turn develop eggs which are passed out in the excrement of the dog. They are spread broadcast on grass and in drinking water where animals can very well eat them and thus become infected. The hog is particularly liable to this disease because of its rooting habits. The eggs may get into human food, and persons who allow dogs to lick their hands and face also run the risk of getting the eggs of the tapeworm in their systems.

Prevention on the farm consists in so restraining the dog that he can not get at carrion or raw viscera. Viscera should be boiled before being fed to dogs and should never be thrown on the fields. If not cooked

and fed, viscera and fed, viscera and carcasses should be burned, buried with lime, or so disposed of as not to be accessible to dogs. Proper feeding of the dog is essential, and the owner who does not feed a dog properly has no right to keep one.

The parasite which causes gid in sheep somewhat resembles the hydatid worm. A dog allowed to eat the brain of a giddy sheep may swallow this parasite and later distribute the eggs of the resulting tapeworm over the pasture. Sheep while grazing swallow the eggs with the grass which they eat. In the case of sheep dogs it is important to administer vermifuges often enough to keep them free of these worms. In the case of sheep measles, the bladder worm in the meat, typical of this disease, is swallowed by the dog and again the tapeworm eggs are passed by the dog to grass or water, and there are eaten by sheep.

Of the external parasites which dogs may carry to animals, fleas and the various kind of ticks are both troublesome and dangerous. The remedy is clear. The owner must keep his dog clean, not merely for the comfort and happiness of the dog, but to prevent it from becoming a carrier of disagreeable and dangerous vermin.

These reasonable measures, important to the stock on the farm, have a direct connection with the health of the family. Where ringworm or other skin diseases break out among the children, or the worm parasites develop, it is well to determine whether a dirty or uncared-for dog may not be carrying infection on his skin or hair, or be conveying disease from carrion directly to the food and persons of his friends. Even if no one is infected with disease, the folly of allowing a dog to remain dirty and have the freedom of a home where personal cleanliness and hygiene are respected, is apparent.

"KIDNEY CURES" SEIZED

Preparations Containing High Percentage of Alcohol Regarded as Not Only Worthless but Harmful.

Action against several so-called "kidney cures" has recently been taken under the

Food and Drugs Act by the United States Department of Agriculture. In one case the shippers of a preparation labeled as "A Sure Cure for Bladder and Kidney Trouble" were prosecuted on the charge of falsely and fraudulently misbranding the product. They pleaded guilty and were fined \$25 and costs by the court. This particular kidney "cure" was found to contain over 41 per cent of alcohol. It was labeled "Old Jim Fields Phosphate Dill and Gin Mankind's Greatest Friend A Sure Cure for Bladder and Kidney Trouble It is also a Great Aid in Case of Urinary Trouble. Allenberg & Meister Sole Agents, Memphis, Tenn." An analysis of the product showed that it contained no material amount of either dill or phosphate.

In another case 48 bottles of "Stuart's Buchu and Juniper Compound," prepared by the Stuart Manufacturing Company, Atlanta, Georgia, were seized. The court issued a decree of condemnation, forfeiture, and destruction on the ground that the claims upon the label were misleading, false, and fraudulent. On this label the manufacturers recommended their product as a remedy for a great variety of kidney and bladder diseases and stated that the medicine contained 16 per cent of alcohol.

According to the medical experts of the Department, alcohol is a kidney irritant and is dangerous in many cases of kidney disease. For this reason many physicians advise their patients who suffer from any kind of kidney or bladder trouble to abstain from the use of alcohol even in moderate quantities. Some manufacturers of kidney medicines which contain considerable quantities of alcohol also advise their customers to abstain from all alcoholic drinks, showing in this way that they know the harmfulness of alcohol in kidney diseases, even though they use it in their own preparations. It is the opinion of the medical experts of the Department that such so-called "kidney remedies" as those recently seized are not only worthless but actually harmful, because of the amount of alcohol which they contain.

PROPAGANDA FOR REFORM

Swan's Rheumatic Bacterin (Mixed) No. 47.—According to the manufacturer, The Swan-Myers Co., Indianapolis, Ind., this preparation contains pneumococci, Friedlaender's bacilli and streptococci (polyvalent). The Council on Pharmacy and Chemistry refused to admit this vaccine to New and Nonofficial Remedies because there is no satisfactory evidence that either the pneumococcus or Friedlaender bacillus is concerned in the etiology of acute or chronic rheumatism or rheumatoid arthritis and no conclusive evidence that the streptococcus is an etiologic factor. (Jour. A. M. A., Nov. 6, 1915, p. 1662).

Elixir Iodo-Bromide of Calcium Comp.—The Tilden Company, New Lebanon, N. Y., and St. Louis, Mo., sells "Elixir Iodo-Bromide of Calcium Comp. without Mercury" and "Elixir Iodo-Bromide of Calcium Comp. with Mercury." The latter is said to contain, in addition to the ingredients of the former, 1-100 gr. mercuric chloride in each fluidram. The "formula" of the elixir without mercury is stated to be: "Salts of Iodine, Bromine, Potassium, Sodium, Calcium, Magnesium with Stillingia, Sarsaparilla, Rumex, Dulcamara, Lappa Taraxacum, Menispermum." Advertising circulars give "formulas" which differ somewhat from the proceeding. None of the "formulas" gives the quantities of all of the several constituents. The Tilden Company asks physicians to depend on these preparations in the treatment of syphilis. While it seems incredible that any physician would jeopardize the health—even the life—of a patient by accepting this advice, the fact that certain medical journals advertise these preparations with the caption "The Conquest of Syphilis" made it incumbent on the Council on Pharmacy and Chemistry to record its condemnation of the employment of these unscientific, semisecret mixtures. (Jour. A. M. A., Nov. 6, 1915, p. 1662).

The Autolysin Treatment.—There were strong evidences from the beginning of a commercial spirit in the exploitation of this treatment. Letters sent to physicians further illustrate the method of promoting this unproved and possibly dangerous treatment. Dr. Richard Weil, who had the opportunity of personally witnessing the application of this compound in a long series of cases at the

General Memorial Hospital, expresses the belief that autolysin is useless, that it adds nothing of value to the methods now generally accepted, and that it often aggravates the sufferings and accelerates the death of the patient. (Jour. A. M. A., Nov. 6, 1915, p. 1641, 1647 and 1662).

Varlex Compound.—This is an alleged cure of the liquor and tobacco habit of the "prescription fake" variety. Advertisements advise the secret administration of: Water 3 ounces, muriate of ammonia 20 grains, Varlex Compound one package, pepsin 10 grains. The A. M. A. Chemical Laboratory reports that Varlex Compound consisted of approximately 97 per cent. milk sugar and 3 per cent. moisture. (Jour. A. M. A., Nov. 6, 1915, p. 1663).

Alkalol.—Analysis in the A. M. A. Chemical Laboratory indicated Alkalol, which is advertised as useful in inflammations of the nose and throat, to be essentially an aromatized, weakly alkaline, saline solution containing a small amount of chlorate, probably potassium chlorate; it yielded about 2 per cent. of solids, mainly alkali chlorid, chlorate and bicarbonate of this 2 per cent. about one-half was bicarbonate. (Jour. A. M. A. Nov. 6, 1915, p. 1665).

Dr. Charles Flesh Food.—This is an ointment sold under such claims as "Applied to the skin nourishes by absorption" and "it builds firm, healthy flesh." It is also said to be an efficient bust developer. Analysis in the A. M. A. Chemical Laboratory indicated the following: starch 38.5 per cent., petrolatum 51.0 per cent., zinc oxide 2.0 per cent., impure stearic acid 1.5 per cent., perfume, coloring matter. (Jour. A. M. A., Nov. 13, 1915, p. 1747).

Intesti-Fermin.—"May we count on your assistance" ingeniously inquires the Berlin Laboratory, Ltd., in an advertisement appearing in a medical journal, and with cool effrontery continues "We are telling the layman about Intesti-Fermin.... May we count on your assistance in spreading this message to everyone....? May they? (Jour. A. M. A., Nov. 13, 1915, p. 1736).

Freckle and Beauty Lotions.—The worthlessness and, in many instances, the dangerous character of nostrums sold as freckle removers and beautifying preparations are indi-

cated by the following analyses, taken from the reports of various state chemists: Hill's Freckle Lotion was found to be a 1.84 per cent. solution of corrosive mercuric chloride. Kingsberry's Freckle Lotion was found to be a solution of corrosive mercuric chloride containing 5.3 parts in 1000. Kulux Compound, a "prescribed fake" freckle and tan remover, was found to contain zinc oxide, bismuth subcarbonate, glycerine and water. Mrs. McCarrison's Famous Diamond Lotion No. 1, said to remove moths, freckles, pimples, etc., was found to be essentially a solution 28.2 parts of corrosive mercuric chloride in 1000 of water. Neroxin, a "prescription fake" said to remove blackheads, was found to contain borax 55 per cent, and "soda" 25 per cent. Othine, sold as a freckle remover, is reported to contain bismuth subnitrate and ammoniated mercury with a fatty base. Perry's Moth and Freckle Lotion Compound was found to be a 16 in 1000 solution of corrosive mercuric chloride containing in addition a small amount of a lead salt. Pyroxin, sold on the "prescription fake" plan as an eyebrow and eyelash grower, was found to be perfumed vaseline. Rose-Kayloin, advertised in fake health departments of some newspapers, was found to contain 80 per cent. sulphate and 15 per cent. potassium carbonate. Mme. Rupert's Face Bleach is reported to be a 4 in 1000 alcoholic solution of corrosive mercuric chloride, containing a small amount of benzoin. Stillman's Freckle Cream was found to be an ammoniated mercury paste. Tan-A-Zin, a complexion beautifier, was found to have for its essential ingredients ammoniated mercury. Sarah Thompson's "Wrinkle Lotion" was found to contain alum 7 per cent., glycerine 29 per cent. and water 64 per cent. Zintone, said to produce a faultless complexion quickly, is reported to contain borax 23 per cent., stearic acid and soap 77 per cent. Though the external use of mercury salts is fraught with danger, the nostrums above shown to contain such poisonous ingredients are sold with the claim that they are practically harmless. (Jour. A. M. A., Nov. 20, 1915, p. 1835 and Nov. 27, 1915, p. 1933).

Anesthesin.—Anesthesin is paramino-ethylbenzoate. New and Nonofficial Remedies states that it is one of the products which owe their existence to the discovery that the

local anesthetic action of cocaine is due to the radical of benzoic acid in combination with a nitrogen-containing basis group. Treasury Decision 2184 contemplates the registration of anesthesin under the Harrison narcotic law. (Jour. A. M. A., Nov. 20, 1915, p. 1837).

Laxative Bromo Quinine.—From the analysis of the A. M. A. Chemical Laboratory it appears that each tablet of Laxative Bromo Quinine contains, as essential ingredients, phenacetin about 2 grs., caffeine 1.5 gr., quinine or cinchona alkaloids 2.5 gr. and aloin or aloes. While the name gives the impression that bromine and quinine are the important ingredients, the bromide content corresponds only to 1-500 part of a pharmacopoeial dose of potassium bromide. In order to get a pharmacopoeial dose of quinine, it would be necessary to take ten Laxative Bromo Quinine Tablets. If this were done, the person would get twenty grains phenacetin, a dangerous poisonous dose. As phenacetin is the essential ingredient of Laxative Bromo Quinine it is evident that this widely exploited nostrum is misbranded. (Jour. A. M. A., Nov. 27, 1915, p. 1932).

Iodeol and Iodagol.—Both appear to be iodine preparations. They are advertised as "Electro-Chemical Colloidal Iodine." Iodeol is recommended as "Iodine with all its potentialities....stripped of all its drawbacks—non-irritating, non-caustic, non-toxic, non-cumulative, injectable without pain." No adequate evidence is offered in support of the therapeutic claims made for Iodeol and Iodagol, although the assertions as to the action of Iodeol in tuberculosis and pneumonia, in particular, are susceptible of test by laboratory and animal investigation. (Jour. A. M. A., No. 27, 1915, p. 1935).

Proprietary Digitalis Preparations.—The Council on Pharmacy and Chemistry reports that it is becoming increasingly apparent that the tincture of digitalis produces the full therapeutic effects of digitalis, and that when it is properly made it is as stable as any liquid preparation of digitalis now available; and that the tincture has the systemic side actions of digitalis, including the emetic, in no greater degree than the various proprietary preparations of this drug. Strophanthin and crystallized ouabain are now available in sterile solutions in ampules and afford a con-

venient means of promptly securing the cardiac action by intramuscular or intravenous injection. (Jour. A. M. A. Dec. 5, 1915, p. 2024).

Dr. Pierce's Pleasant Pellets.—The A. M. A. Chemical Laboratory reports that the pills responded to tests for emodin and aloin. Essentially, Pierce's Pleasant Purgative Pellets appear to be an ordinary laxative pill. That the active principle of aloes was found in the pills is of interest in view of the fact that the leaflet advertising Pierce's Pleasant Pellets warns the public against the use of purgatives composed of aloes. (Jour. A. M. A., Dec. 4, 1915, p. 2025).

Nose-Ions.—The A. M. A. Chemical Laboratory reports that the circular matter for "Nose-Ions" is a crude attempt to impose on a scientifically trained profession with pseudo-scientific patter about ions, ionic dissociation and the positive and negative charges of ions. It appears that Nose-Ions is essentially an ointment consisting of a petrolatum base, containing some odorous principles such as camphor, menthol and eucalyptus, with some salicylic acid and some quinine. (Jour. A. M. A. Dec. 4, 1915, p. 2026).

Ozomulsion.—This "patent medicine" long sold as a consumption "cure" has been declared misbranded under the Food and Drugs Act, the therapeutic claims being both false and fraudulent. The preparation was found to be an emulsion of cod liver oil, with glycerine and phosphorus compounds of calcium and sodium. (Jour. A. M. A., Dec. 18, 1915, p. 2184).

Dr. Whittington's Treatment for Consumption.—This preparation was examined in the A. M. A. Chemical Laboratory. From the analysis it appears that Dr. Whittington's Treatment for Consumption is a flavored syrup devoid of potent ingredients other than alcohol. Dr. Whittington is a member of the Medical Society of California. (Jour. A. M. A., Dec. 18, 1915, p. 2184).

Rogers' Consumption Cure.—Rogers' Consumption Cure and Cough Lozenges and Rogers' Inhalant were advertised for the treatment of diseases of the lungs, etc. The government chemists reported that the first consisted of sugar lozenges, containing a small amount of gum and a trace of oil of rosemary. The inhalant was found to be an alcoholic solution of volatile oil, chiefly rose-

mary. The government held the therapeutic claims made for these preparations false. The owners having made no defense, they were fined. (Jour. A. M. A., Dec. 18, 1915, p. 2185).

Mist. Helonin Comp.—The only available information in regard to the composition of Mist. Helonin Comp. Schlotterbeck and Foss, is a statement in a circular that the active ingredients are helonin, senecin and avenin and the statement on the label that it contains 45 per cent. alcohol. The alcohol content is that of strong whiskey. The practically inert drugs asserted to be contained in it would not in the least interfere with its use as a cordial. On the basis of the information supplied by the manufacturer, Mist. Helonin Comp. may be classified as an objectionable and worthless nostrum—unless we regard the alcohol as of value. (Jour. A. M. A., Dec. 18, 1915, p. 2186).

Incompatibility of Quinine with Aspirin.—Experiments have shown that weak acids, such as acetylsalicylic acid (aspirin), citric, malic, acetic or tartaric acid under the influence of heat may convert quinine into its poisonous isomer quinotoxin and chinchona into cinchotoxin. The danger of the formation of quinotoxin in the body cannot be great. Ready-made mixtures of quinine or cinchona preparations with weak organic acids should be avoided. (Jour. A. M. A., Dec. 18, 1915, p. 2187).

Salvarsan Made in U. S.—Because of the shortage due to the war, salvarsan is made and offered for sale under its chemical name to physicians and hospitals urgently in need of it by the dermatologic laboratories of the Philadelphia Polyclinic. Dr. Jay F. Schamberg, the director of the Department of Dermatological Research, states that the product made by the dermatologic laboratories has been employed on hundreds of cases with excellent therapeutic results and with no reports of accidents or untoward complications. (Jour. A. M. A., Dec. 18, 1915, p. 2179).

Cu-Co-Ba, Tarrant.—From the statements of the circulars, it appears to be one of the copaiba and cubeb preparations which at one time were in vogue as a routine measure in the treatment of gonorrhea. (Jour. A. M. A., Dec. 25, 1915, p. 2257).

Poslam.—The A. M. A. Chemical Laboratory in 1909 found that essentially Poslam

consisted of zinc oxide 12.01 parts, sulphur 6.67 parts, corn starch 22.00 parts, tar oil 15.18 parts, menthol and salicylic acid small quantities, fatty base to make 100 parts. For skin affections which may be benefited by ointments the official ointments are as effective as the proprietary products and have the added advantage of being of known and more uniform composition. (Jour. A. M. A., Dec. 25, 1915, p. 2256).

Orthoform—New.—Treasury Decision 2194 contemplates registration of orthoform—new under the Harrison Narcotic Law. (Jour. A. M. A., Dec. 25, 1915, p. 2257).

Book Review

**THE MEDICAL CLINICS OF CHICAGO,
JULY, 1915, VOL. 1, No. 1**
**THE MEDICAL CLINICS OF CHICAGO,
SEPTEMBER 1915, VOL. 1, No. 2.**
**THE MEDICAL CLINICS OF CHICAGO,
VOLUME I NUMBER III. (November 1915)**

The Medical Clinics of Chicago. Volume I, Number III (November 1915). Octavo of 200 pages, 23 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Price per year. Paper, \$8.00. Cloth \$12.00.

Probably no medical publication of recent years will be of as great value to the general profession as will this new series of Clinics put forward by the Saunders Company.

To have the work of men such as are found in the clinics of Chicago put into shape for use by the general practitioner is no little task and the publishers are to be complimented upon their achievement, as every department of internal medicine is represented and the physician has indeed an opportunity to view "word photographs of the actual up-to-date management of each case in its important phases."

The first issue contains material and cases from the clinics of Doctors Mix, Williamson, Abt, Preble, Goodkin, Tice, Hamburger and Hamill and includes a variety of subjects from tuberculosis and contracted kidney to syphilis of the central nervous system.

Number two contains a valuable clinic on tubercular meningitis with a review of the

cardinal symptoms and differential diagnosis among many other case reports of equal interest and value.

Number three opens with a full discussion of the treatment of typhoid fever by Doctor Mix which seems to the reviewer to be the most sensible resume of the subject that it has been his privilege to read in recent years. Another particularly good clinic report is that on abdominal pain by Doctor Hamburger. The discussion of the differential diagnosis is exhaustive and therefore instructive. The entire number is full of excellent material.

We cannot help but repeat that this is a great undertaking and one that is bound to be of immense value to the general practitioner and internist and we bespeak for The Medical Clinics of Chicago a most cordial welcome and a long life.

THE CLINICS OF JOHN B. MURPHY, M. D. Volume IV, Number V. (October 1915)

The Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume IV., No. V., (October 1915). Octavo of 228 pages, 56 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Published bi-monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

The Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume IV, Number VI., (December, 1915). Philadelphia and London: W. B. Saunders Company, 1915. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

Murphy's Clinics continue in their popularity and justly so for each number brings out new points and refers the reader to some case previously illustrated or reported and which later presents some new point or emphasizes some particular feature commented upon.

In the October number, in addition to the interesting cases reported by Doctor Murphy a case report is made of an inoperable recurrent carcinoma of the nasopharynx injected with mixed toxins by Doctor W. B. Coley in which the neoplasm disappeared under five weeks of treatment.

The December number is devoted largely to bone work and is full of interesting case reports and illustrations.

LABORATORY METHODS

With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M. D., and E. G. C. Williams, M. D. With an introduction by Victor C. Vaughan, M. D., LL. D. Third Edition. 43 Illustrations. St. Louis. C. V. Mosby Company. \$2.50 net.

The necessity for a third edition of this now deservedly popular work is found in the additions of some of the newer methods of laboratory tests developed since the second edition was published.

The authors are to be commended in the plan adopted—that of adding an appendix rather than make sweeping revisions of the text.

This little volume is well worth a place in the library of every general practitioner.

AGAR IN CHRONIC CONSTIPATION.

As is perhaps generally known to physicians, Agar (sometimes designated Agar-agar) is a Japanese gelatin derived from seaweed. This substance has the natural property of absorbing water readily, and retaining it. It resists the action of intestinal bacteria, as well as that of the enzymes. Its use in the treatment of chronic constipation is based upon the fact that when ingested it passes practically unaltered into the intestine, where it adds to the bulk of the feces and thereby stimulates peristalsis; also it softens hard and dry fecal masses, thus favoring normal evacuation.

Parke, Davis & Co., supply a superior quality of Agar in granular form, which is very convenient for use and free from the somewhat unpalatable character of the ordinary commercial product. It is marketed in pound and quarter-pound cartons.

One or two heaping tablespoonfuls, according to individual requirements, taken morning or evening at meal time with milk or cream or mixed with a cereal food, usually produce the desired result.

POWERFUL ANTISEPTIC AND DISINFECTANT.

A solution of Germicidal Soap (McClintock) containing 1:5000 mercuric iodide, the active ingredient, destroys common pus-producing organisms in less than five minutes. Prof. F. G. Novy, of the University of Michigan, is

authority for the statement. He adds that solutions of mercuric chloride 1:1000 require more than fifteen minutes to accomplish the same result.

Germicidal Soap (McClintock) is at once a sterilizer, cleanser and lubricant. It is useful for sterilizing hands, instruments, and sites of operation; for lubricating sounds, specula, etc. It is excellent for vaginal douching, as it tends to dissolve pus, blood and mucus, whereas most other germicides coagulate them. It serves well as a disinfectant wash after attendance upon cases of communicable disease; in certain surface lesions associated with fetid discharge; in skin affections of parasitic origin. It is efficacious as a deodorant in offensive hyperhidrosis. In short, whenever and wherever a powerful disinfectant and detergent is required, this soap would seem to be indicated.

Germicidal Soap (McClintock) is supplied in two strengths, containing, respectively, one per cent. and two per cent. of mercuric iodide. The stronger soap (two per cent.) is marketed in large cakes only; the milder (one per cent.) in large and small cakes, in collapsible tubes manufacturers.

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J. A. McINTOSH, M. D., Res. Phys.

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CASE HISTORIES AND RECORDING OF CASES.

This very important subject is one which is insufficiently dealt with in current medical literature. Cases are reported with varying degrees of accuracy in great profusion, but very little appears regarding the value and best methods of collecting and recording data which we daily have at hand. This little editorial is not intended as criticism, but is written in the hope that it will give one or more of the readers a suggestion that will be of assistance not only to him, but also indirectly to other members of the profession and to the laity.

We must acknowledge as a fact that too many physicians either make no record of visits or work done except that which is necessary for rendering a business statement, or make note of so few scientific

facts of the case seen that they are of no value to himself or anyone else. There are many causes for this, some of which being difficult to control, others easy. The usual cause is too much to do and too little assistance. During office hours patients follow each other in rapid succession, and visits made in houses and hospitals frequently have to be postponed on account of some emergency case. No records are made at the time of these visits, and notes have to be made later from memory, which are sure to lack fullness in detail, if they are made at all. This excess of work over amount of time at a man's disposal sooner or later always breeds carelessness, which, of course, shows not only in the matter of the proper recording and studying of his cases, but also in the quality of the work he does. He must hurry to get through the work he must do, which is, of course, at the expense of thoroughness. This carelessness has, no doubt, seriously injured the profession with the laity. When a physician is busy enough to have the above remarks apply to him, he should have a secretary, or nurse,

who is easily trained to be of great assistance to him in his work by attending to many small time-consuming details, thus leaving him more time to do more important things.

When cases are properly recorded and used for reference later, they are of great value to him in the handling of future cases, and can only then give him the full benefit of his experience. We owe it to our future patients to get all of our experiences that we can, and that can only be done by the careful observation and proper recording of our cases, and occasional reference afterward.

In the taking of case histories two things must always be remembered—care and method. Whenever we are dealing with a chronic or obscure condition, and not with one that is an emergency or acute, of apparent cause, we must take the history systematically as recommended in the text-books on diagnosis, and WRITE IT ALL DOWN. No matter how carefully we may elicit the facts when questioning the patient, we cannot remember the details, and everything should be written down. Points in differential diagnosis should be considered as the history is developed. Few histories taken by physicians in private practice are as complete as they should be. Printed history forms, ready to be filled in, are serviceable and can be varied according to the special needs of the physician using them.

Occasionally records are left incomplete or wrong diagnosis made

on account of failure to examine enough clinical specimens, such as blood, urine, sputum, stomach contents or faeces. The camera has not been sufficiently used for purposes of record; many interesting conditions can be recorded in this manner when the patient is placed in a good light.

We are well acquainted with the value of good records when dealing with cases having a legal or pension aspect. Careless and inaccurate work, and a poor record command very little respect in such instances. Life insurance companies recognize the necessity of careful records; it means money to them.

This is an important subject and should be given more attention in our literature and discussions.

PNEUMONIA.

Ten per cent of the deaths in the United States result from pneumonia. It is estimated that during the past thirty days this rate has been doubled in some sections. Tuberculosis and heart disease, each causing one-ninth of all fatalities, are the only diseases which outrank pneumonia among the legion of the men of death, but in certain cities pneumonia is steadily increasing and even has surpassed the mortality from tuberculosis. Seventy per cent of all cases occur between December and May. It is distinctly a cold weather infection, seemingly brought by wintry blasts, but especially prevalent during the winter season only because its victims are rendered more susceptible at

that time by exposure, debilitating influences and the presence of predisposing infections.

Pneumonia principally affects those at the extremes of life, but no age is exempt. It is invariably a germ disease. The predisposing and exciting organisms are so numerous that it would be futile to attempt their enumeration. Many of them are constantly present in the mouths and throats of healthy persons and it is only through the aid which we unwillingly extend to them that they are transformed from harmless organisms to one of man's most powerful enemies.

The presence of other diseases is the great predisposing cause of pneumonia. They prepare the soil for invasion. Holding first rank in this category is influenza, the increased incidence of pneumonia at this time being largely due to the present epidemic of la grippe. Individuals suffering from this infection are peculiarly susceptible to respiratory complications and should properly observe every hygienic rule. Inflammation of the upper air passages, pharyngitis, bronchitis, and tonsilitis, often predispose to the development of the disease particularly among the aged and infirm. The acute contagious diseases of childhood, more especially measles and whooping cough, frequently prepare the way for pneumonia. Anyone who through neglect or carelessness permits the spread of these infections is therefore open to the severest condemnation. Exhausting disease of whatever nature, is often sufficient to so

reduce our resistance that we are unable to cope with organisms which should be easily overcome, and hence predisposes to the infection.

Debility, either temporary or chronic, developing from any cause, increases susceptibility. Because of this the disease most often attacks those at the extremes of life. Among debilitating influences must be mentioned cold, exposure to penetrating winds, and the chilling of body surfaces as a result of wetting. The combination of lack of food and fatigue proves particularly disastrous during the winter season and is a condition to be avoided whenever possible. Bad housing, mental or physical harassment, and overwork are alike the advance agents of the infection. Overcrowding, in street cars, theaters, and other public places, is unquestionably in part responsible for the spread of pneumonia in cities, as far greater opportunity is thus offered for the dissemination of the predisposing diseases through indiscriminate coughing and other means of droplet infection, as well as the directly injurious effects which inevitably result from exposure to such environment. The overheating of rooms is also seemingly harmful. Promiscuous expectoration may be, and probably is, a factor in infection and consequently should be avoided by every citizen. A remaining most important agent should be mentioned,—alcohol. It is in truth the handmaiden of pneumonia, and there is none more certain or more sure of success, especially if liberally and continuously used.

While the foregoing facts constitute in part our knowledge of the reasons for the widespread dissemination of an infection which carries with it a mortality of from ten to thirty per cent, it should be remembered that our scientific data are not yet complete. There are problems connected with immunity, predisposition, and the occurrence of epidemics which are yet to be solved. It is known that pneumonia frequently attacks those who are perfectly well, and who apparently have observed every hygienic rule. Whether this is due to the increased virulence of the organism or to other causes is unexplained. It is, however, recognized that avoidance of the factors so briefly enumerated will in large part diminish individual susceptibility and therefore the incidence of the disease.

AMERICAN FIRST AID CONFERENCE.

The first meeting of the American First Aid Conference was held on August 23 and 24, 1915, at Washington, D. C. The deliberations of this conference culminated in the adoption of the following resolution, creating a board on first aid standardization for the purpose of studying first aid problems and standardizing methods, materials and equipment employed in the administration of first aid to those injured in the pursuit of industrial occupations and in war:

"Whereas, There is a great lack of uniformity in first aid methods; in first aid packages, and in other first aid equipment; and in first aid instruction, and

Whereas, Many of the aims of first aid are defeated thereby and needless suffering and expense incurred;

Therefore, Be It Resolved:

That this Conference recommends to the President of the United States that he appoint a 'Board on First Aid Standardization,' said Board to consist of one officer each from

the Medical Corps of the U. S. Army, the Medical Corps of the U. S. Navy, the U. S. Public Health Service, the American National Red Cross, the American Medical Association, the American Surgical Association and the Association of Railway Chief Surgeons of America; this Board to deliberate carefully on first aid methods, packages, equipment and instruction and to recommend a standard for each to a subsequent session of this Conference to be called by the Permanent Chairman; the creation and maintenance of the said Board to be without expense to the United States.

To attain the objects of this movement it is essential that this board should consult the best opinion of the country on the problems involved and should enlist the sympathy and active cooperation of medical societies throughout the United States. To this end the following resolution was also passed by the conference:

"That the questions noted below be sent to the Chief Surgeons of Railroads, Mines and Manufactories, first, to be answered by them; second, that a copy of these questions to be sent by the Chief Surgeons to their Associate Surgeons.

The object of these question is to attempt to get the opinion and experience of a number of surgeons and to formulate them for publication.

Please answer each question on a separate sheet of paper and sign your name to each sheet:

1. What has been your experience with the most available first aid package and dressing for small and large wounds?
2. What has been your experience with the immediate employment of antiseptics in accidental wounds; what antiseptic have you used, in what strength, and how applied? Have you employed tincture of iodine? If so, how and what have been the results?
3. What in your experience has been the most efficient and most readily applied method of fixation for injuries of the (a) upper and (b) the lower extremity?
4. Have you considered the construction of a stretcher, which, in addition to serving as a means of transportation of injured, will have appliances for the fixation of the upper and lower extremity, somewhat along the

lines of a Bradford splint, or the Gihon naval splint?

5. Please state your views on some liquid ointment dressing which would be available for first aid in large wounds and burns with the object of preventing the usual dry-gauze dressing adhering to the wound and rendering subsequent dressings painless."

The secretary of the conference, Dr. Joseph C. Bloodgood of Baltimore, has also sent to the secretaries of medical societies throughout the United States a circular letter, urging them to submit to the councils of their respective societies a resolution to appoint a special committee of three surgeons to study and deliberate carefully on first aid methods, packages, equipment and instruction. To recommend a standard for each to the National Board, and, through a special representative or representatives, participate in the next American First Aid Conference which will be convened to consider the results of the labors of the National Board. The secretary of the conference, Dr. Bloodgood, will also welcome answers to the above questions from any surgeons of experience in the treatment of accidental injuries, and these answers will receive full consideration in the deliberations of the National Board.

This national movement for the standardization of first aid methods cannot be too cordially approved, since its purposes and ultimate ends are directed toward the establishment of a maximum of efficiency which will be of advantage not solely to this country but to the world at large, not in war alone, but even more importantly in dealing with the many and often inevitable traumata of peaceful industries. To obtain the prevailing opinion of the medical profession on these matters and to crystalize this opinion into safe guides for action there is need of the interested cooperation of all medical societies and of the individuals who compose them. The attention of the profession is, therefore, particularly directed to this new movement in an important department of national and professional proficiency.—Reprinted from the *Boston Medical and Surgical Journal*, Vol. clxxiii, No. 18, pp. 675-676, October 28, 1915.

DEFINES DIABETIC FOODS

U. S. Department of Agriculture Issues Decision on Gluten Products and Diabetic Food.

Food Inspection Decision No. 160, recently issued by the U. S. Department of Agriculture, for the guidance of officials of the Department in enforcing the Food and Drugs Act, fixes a definite limit to the amount of starch and sugar that may be present in certain gluten products and diabetic foods, and also fixes the amount of nitrogen that must be present in certain of these products, and makes requirements as to moisture and other constituents. The decision covers ground gluten, gluten flour, self-rising gluten flour, and "diabetic" foods. The definitions and standards as stated in the Food Inspection Decision were recommended by the Joint Committee on Definitions and Standards, consisting of representatives of the U. S. Department of Agriculture, the Association of American Dairy, Food, and Drug Officials, and the Association of Official Agricultural Chemists. These two associations have already adopted the definitions and standards.

Investigations by the officials in charge of the enforcement of the Food and Drugs Act have shown that various food products have been placed on the market from time to time that are recommended by the manufacturers for use by people suffering from diabetes. It is generally held that the foods best suited to persons suffering from diabetes are those which contain little or no starch and sugar. Some of the foods placed on the market and recommended by the manufacturers for use in diabetes have been found to contain nearly as much starch and sugar as ordinary products, so that they were of no more value in the treatment of diabetes than ordinary food products that could be purchased more cheaply. The diabetic patient can avoid ordinary food products that contain considerable quantities of starch and sugar, as the composition of these products are generally known. In the case of prepared foods advertised for use in diabetes, however, the patient may be misled into eating quantities of starch and sugar that might be positively injurious.

Hereafter such products should meet the

requirements of Food Inspection Decision No. 160, which are as follows:

Ground gluten is the clean, sound product, made from wheat flour by the almost complete removal of starch and contains not more than ten per cent of moisture, and, calculated on the water-free basis, not less than fourteen and two-tenths per cent of nitrogen, not more than fifteen per cent of nitrogen-free extract (using the protein factor 5.7), and not more than five and five-tenths per cent of starch (as determined by the diastase method).

Gluten flour is the clean, sound product made from wheat flour by the removal of a large part of the starch and contains not more than ten per cent of moisture, and, calculated on the water-free basis, not less than seven and one-tenth of nitrogen, not more than fifty-six per cent of nitrogen-free extract (using the protein factor 5.7), and not more than forty-four per cent of starch (as determined by the diastase method).

Gluten flour, self-raising, is a gluten flour containing not more than ten per cent of moisture, and leavening agents with or without salt.

"Diabetic" Food. Although most foods may be suitable under certain conditions for the use of persons suffering from diabetes, the term "diabetic" as applied to food indicates a considerable lessening of the carbohydrates found in ordinary products of the same class, and this belief is fostered by many manufacturers on their labels and in their advertising literature.

A "diabetic" food contains not more than half as much glycogenic carbohydrates as the normal food of the same class. Any statement on the label which gives the impression that any single food in unlimited quantity is suitable for the diabetic patient is false and misleading.

The foregoing definitions and standards are adopted as a guide for the officials of this department in enforcing the Food and Drugs Act.

PRINCIPAL CAUSES OF DEATH

Census Bureau's Summary of the Statistics for the Registration Area in 1914.

According to a preliminary announcement with reference to mortality in 1914, issued by Director Sam L. Rogers, of the Bureau of the Census, Department of Commerce, and compiled by Mr. Richard C. Lappin, chief statistician for vital statistics, more than 30 per cent of the 898,059 deaths reported for that year in the "registration area," which contained about two-thirds of the population of the entire United States, were due to three causes—heart disease, tuberculosis, and pneumonia—and more than 60 per cent to eleven causes—the three just named, together with Bright's disease and nephritis, cancer, diarrhea and enteritis, apoplexy, arterial diseases, diphtheria, diabetes, and typhoid fever.

The deaths from heart disease (organic diseases of the heart and endocarditis) in the registration area in 1914 numbered 99,534, or 150.8 per 100,000 population. The death or mortality rate from this cause shows a marked increase as compared with 1900, when it was only 123.1 per 100,000.

Tuberculosis in its various forms claimed 96,903 victims in 1914, of which number 84,366 died from tuberculosis of the lungs (including acute miliary tuberculosis). As a result of a more general understanding of the laws of health, the importance of fresh air, etc., due in part, no doubt, to the efforts of the various societies for the prevention of tuberculosis, there has been a most marked and gratifying decrease during recent years in the mortality from this scourge of civilization. In only a decade—from 1904 to 1914—the death rate from tuberculosis in all its forms fell from 200.7 to 146.8 per 100,000, the decline being continuous from year to year. This is a drop of more than 25 per cent. Prior to 1904 the rate had fluctuated, starting at 201.9 in 1900. Even yet, however, tuberculosis has the gruesome distinction of causing more deaths annually than any other form of bodily illness except heart diseases, and over 40 per cent more than all external causes—accidents, homicides, and suicides combined.

Pneumonia (including bronchopneumonia) was responsible for 83,804 deaths, in the regis-

tration area in 1914, or 127 per 100,000—the lowest rate on record. The mortality rate from his disease, like that from tuberculosis, has shown a marked decline since 1900, when it was 180.5 per 100,000. Its fluctuations from year to year, however, have been pronounced, whereas the decline in the rate for tuberculosis has been nearly continuous.

The only remaining death rate higher than 100 per 100,000 was that for Bright's disease and acute nephritis, 102.4. The total number of deaths due to these maladies in 1914 was 67,545, more than nine-tenths of which were caused by Bright's disease and the remainder by acute nephritis. The mortality from these two causes increased from 89 per 100,000 in 1900 to 103.4 in 1905, since which year it has fluctuated somewhat.

Next in order of deadliness come cancer and other malignant tumors, which filled 52,420 graves in 1914. Of these deaths, 19,889, or almost 38 per cent, resulted from cancers of the stomach and liver. The death rate from cancer has risen from 63 per 100,000 in 1909 to 79.3 in 1914. The increase has been almost continuous, there having been but two years—1906 and 1911—which showed a decline as compared with the year immediately preceding. It is possible that at least a part of this indicated increase is due to more accurate diagnoses and greater care on the part of physicians in making reports to registration officials.

Diarrhea and enteritis caused 52,407 deaths in 1914, or 79.4 per 100,000. This rate shows a marked falling off as compared with the rate for the preceding year, 90.2, and a very pronounced decline as compared with that for 1900, which was 133.2. Nearly five-sixths of the total number of deaths charged to these causes in 1914 were of infants under 2 years of age.

Apoplexy was the cause of 51,272 deaths, or 77.7 per 100,000. The rate from this malady has increased gradually, with occasional slight declines, since 1900, when it stood at 67.5.

Arterial diseases of various kinds—atheroma, aneurism, etc.—caused 15,044 deaths, or 22.8 per 100,000, in the registration area.

No epidemic disease produced a death rate as high as 18 per 100,000 in 1914. The fatal cases of diphtheria and croup—which are classed together in the statistics, but practi-

cally all of which are of diphtheria—numbered 11,786, or 17.9 per 100,000, in that year, the rate having fallen from 43.3 in 1900. This decline of nearly 59 per cent is relatively greater than that shown by any other important cause of death. The rate has not fallen continuously, but has fluctuated somewhat from year to year.

Diabetes was the cause of 10,666 deaths, or 16.2 per 100,000. The rate from this disease has risen almost continuously from year to year since 1900, when it was 9.7 per 100,000.

The mortality rate from typhoid fever has shown a most gratifying decline since 1900, having decreased from 35.9 per 100,000 in that year to 15.4 in 1914, or by 57 per cent. This decline has been almost as great, relatively, as that for diphtheria, and has been greater than that for any other principal cause of death. The total number of deaths due to typhoid fever in 1914 was 10,185. The marked decrease in the mortality from his disease gives emphatic testimony to the effectiveness of present-day methods, not only of cure but of prevention. The efficacy of improved water-supply and sewerage systems, of the campaign against the fly, and of other sanitary precautions is strikingly shown by the reduction of the typhoid mortality rate to the extent of more than five-ninths in 14 years.

Whooping Cough, Measles, and Scarlet Fever

The principal epidemic maladies of childhood—whooping cough, measles, and scarlet fever—were together responsible for no fewer than 15,617 deaths of both adults and children, or 23.7 per 100,000, in the registration area in 1914, the rates for the three diseases separately being 10.3, 6.8, and 6.6, respectively. In 1913 measles caused a greater mortality than either of the other diseases, but in 1914 whooping cough had first place. In every year since and including 1910, as well as in several preceding years, measles has caused a greater number of deaths than the much more dreaded scarlet fever. The mortality rates for all three of these diseases fluctuate from year to year. The rates for measles and scarlet fever in 1914 were the lowest in 15 years, while that for whooping cough was considerably above the lowest recorded rate for this disease, 6.5

in 1914, although far below the highest, 15.8 in 1903.

Railway and Street Car Accidents

Deaths due to railway accidents and injuries totaled 7,062, or 10.7 per 100,000. This number includes fatalities resulting from collisions between railway trains and vehicles at grade crossings. The death rate from railway accidents and injuries is the lowest on record and shows a most marked and gratifying decline as compared with the rate for 1913, which was 13 per 100,000, and a still more pronounced drop from the average for the five-year period 1906-1910, which was 15 per 100,000.

Deaths resulting from street-car accidents and injuries numbered 1,673, or 2.5 per 100,000. This rate, like that for railway fatalities, is the lowest on record and shows a material falling off as compared with 1913, when it was 3.2, and as compared with the average for the five-year period 1906-1910, which was 3.7.

Suicides.

The number of suicides reported in 1914 was 10,933, or 16.6 per cent per 100,000 population. Of this number, 3,286 accomplished self-destruction by the use of fire arms, 3,000 by poison, 1,552 by hanging or strangulation, 1,419 by asphyxia, 658 by the use of knives or other cutting or piercing instruments, 619 by drowning, 255 by jumping from high places, 89 by crushing, and 85 by other methods.

The following decisions will be of interest to the profession:

UNITED STATES DISTRICT COURT— WESTERN DISTRICT OF TENNESSEE

Harrison Antinarcotic Law—Possession of the Drugs Named in the Law by a Person Not Required to Register Held Not To Be Violation of the Law.

United States vs. Wilson, 225 Fed. Rep. 82.
(May 31, 1915).

The Harrison Antinarcotic Act is a criminal statute, and must be strictly construed.

Section 8 of the Harrison Antinarcotic Act was not intended by Congress to apply to persons who are not required to register and pay the special tax under the act.

The defendant had at her house a small quantity of opium and an opium pipe. She did not sell, give away, or deal in opium, except to buy and smoke it. She was charged with unlawfully having in her possession and under her control smoking opium, in violation of section 8 of the

Harrison Antinarcotic Act. The court held that the facts proved did not constitute an offense under the act because it was not shown that she belonged to any one of the classes of persons who are required to register and pay the special tax under the law.

McCall, District Judge: The defendant was indicted under the act of Congress, approved December 17, 1914, known as the Harrison Antinarcotic Law, and arraigned, pleaded not guilty, and was tried by a jury. There are three counts in the indictment. The district attorney recommended a verdict of not guilty under the first and third counts. The jury found the defendant guilty under the second count.

The case is now before me upon a motion for a new trial. Several grounds are assigned, but I shall consider only those based upon the proposition that the second count charges no offense, and that none was proven. The others are overruled.

The second count charges the defendant with having violated the eighth section of the act, which is as follows:

"Sec. 8. That it shall be unlawful for any person not registered under the provisions of this act, and who has not paid the special tax provided for by this act, to have in his possession or under his control any of the aforesaid drugs; and such possession or control shall be presumptive evidence of a violation of this section, and also of a violation of the provisions of section 1 of this act."

It was admitted, at the trial, that the defendant had at her house, in her possession, and under her control, an opium pipe and an outfit necessary for smoking purposes, including a small quantity of opium prepared for the pipe, at the time charged in the indictment. The defendant testified in her own behalf that she had for several years been an addict to opium smoking, and that the opium prepared for smoking found in her possession was obtained by her from a Chinaman, and that she had it for her own personal use and consumption; that she never sold, gave away, nor dealt in it in any form, except to buy and smoke it. This evidence was uncontradicted, and presents the question, whether it is an offense under the act, for a person to have in his or her possession any of the drugs named in the act for personal use. If it is an offense, Congress has not in terms so declared, and it must be worked out by a construction of the language of the act. It is a criminal statute, and must be strictly construed. Such portions of the act as are pertinent to the in-

quiry must be considered. The first section is as follows

That "every person who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes, or gives away opium or coca leaves or any compound, manufacture, salt, derivative, or preparation thereof, shall register with the collector of internal revenue of the district his name or style, place of business, and place or places where such business is to be carried on." At the time of such registry and on or before the first day of July, annually thereafter, every person who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes, or gives away any of the aforesaid drugs, shall pay to the said collector a special tax at the rate of \$1 per annum. * * * It shall be unlawful for any person required to register under the terms of this act to produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away any of the aforesaid drugs without having registered and paid the special tax provided for in this section."

The first clause of section 1 declares who shall register and pay the special tax. They are those who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away the drugs mentioned. The second clause of section 1 declares it to be unlawful for any person required to register by the first clause of section 1, to do any of those things named therein without having registered and paid the special tax provided in the section.

The question now arises, To whom does the clause "and person not registered under the provisions of this act and who has not paid the special tax" in the eighth section refer? Clearly, it refers to, and at least includes, those doing the things specifically named in the first section. Does it refer to and include others doing things not specifically named in the act, viz, those having in their possession or under their control the drugs named for their personal consumption? It seems to me that to so hold would be for the court to enlarge the list of those whom Congress required to register and pay the special tax. To that extent it would be an amendment of the act. This is not the function of the court. If Congress had intended to require persons to register who had in their possession or under their control drugs for any purpose other than that stated in the act, it would seem that it would have been a simple matter to have said so. It is clear to my mind that the language quoted from the eighth section, *supra*, when read in connection with the first section of the act, refers only to those mentioned in the last-named section, and however desirable it may be to have that list enlarged the court is without authority to do it.

It is, in my judgment, the purpose of section

8 to make the mere possession of the drugs mentioned in the act by any of those specified in the first section presumptive evidence that such parties had not registered, nor paid the special tax as required therein, and that it was not intended to enlarge the class that is required to register and pay the tax under the first section, nor is it, in my judgment, susceptible of such construction. The section establishes a rule of evidence, in that, upon the Government proving that a defendant was doing any of those things mentioned in section 1, clause 1, of the act, and, further, that a narcotic was found in his possession, he would be presumptively guilty of violating the first section of the act; then the burden of proof shifts, and is upon the defendant to show affirmatively that he is not one of the class mentioned in section 1, required to register, or, if so, that he had registered and paid the special tax. Section 8, in this particular, is very similar to the statute of the State of Tennessee which makes the possession of a retail liquor dealer's federal tax stamp *prima facie* evidence that the party holding it is selling liquor in violation of the laws of Tennessee. Acts Tenn., 1903, c. 355. This presumption may be overcome by the evidence. In the case at bar, I think the presumption of guilt of the defendant was fully met and overcome by the proof.

The result is that the motion for a new trial will be allowed; and it is so ordered.

UNITED STATES DISTRICT COURT— WESTERN DIST. OF PENNSYLVANIA

Harrison Antinarcotic Law—Possession of Habit-Forming Drugs by a Person Not Required to Register Under the Law Is Not Unlawful.

United States vs. Jin Fuey Moy, 225 Fed. Rep. 1003. (May 12, 1915).

The law of December 17, 1914, known as the Harrison or Federal Antinarcotic Act, is a revenue act, and section 8, which makes it unlawful for a person not registered under the act to have in his possession any of the drugs to which the act applies, is applicable only to persons who manufacture, import, give away, or deal in the drugs. A physician was charged with violating section 8 of the Harrison Antinarcotic law by conspiring with a drug addict to allow the drug addict to secure possession of opium. The physician gave to the addict a prescription for opium. It was charged that this was not done for the purpose of medical treatment, but in order to allow the addict to secure possession of the drug. The court held that the law did not make mere possession and control of the drug by a person not

required to register and pay the tax unlawful. Therefore, the possession of the drug by the addict was not a violation of the law, and the physician could not be convicted.

Thomas, District Judge: This is a revenue act; and unless it is such, save as to those provisions which relate to the transportation of drugs in interstate commerce, it would perhaps violate the provisions of the Constitution of the United States.

The first section of the act requires that all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away opium or coca leaves, or any compound, manufacture, sale, derivative, or preparation thereof, shall register and pay an annual tax of \$1.00 to the Government. The act also makes it unlawful for any person required to register under the terms of the act to produce, import, manufacture, compound, deal in, dispense, sell, distribute or give away any of the aforesaid drugs without having registered and paid the special tax. The second section makes it unlawful for any person to sell, barter, exchange, or give away any of the aforesaid drugs, except in pursuance of a written order of the person to whom such articles sold, bartered, exchanged or given, on a form to be issued in blank for that purpose by the commissioner of internal revenue.

The act definitely excepts from the provisions of section 2 the dispensing or distribution of any of the aforesaid drugs to a patient by a physician, dentist, or veterinary surgeon registered under this act in the course of his professional practice, and also to the sale, dispensing, or distribution of any of the aforesaid drugs by a dealer to a consumer under and in pursuance of a written prescription issued by a physician, dentist, or veterinary surgeon registered under the act. There are also other exceptions to the provisions of section 2.

The indictment in question is drawn under the provisions of section 8 of this act, and the particular portion of the section on which the Government relies to sustain the illegality of the possession by Martin is as follows:

That it shall be unlawful for any person not registered under the provisions of this act, and who has not paid the special tax provided for by this act, to have in his possession or under his control any of the aforesaid drugs; and such possession or control shall be presumptive evidence of a violation of this section and also of a violation of the provisions of section 1 of this act.

There is a provision in this section that the section shall not apply—

to the possession of any of the aforesaid drugs which has or have been prescribed in good faith by a physician, dentist, or veterinary surgeon registered under this act.

Turning to the indictment itself, we see that the defendant is charged as follows With unlawfully, willfully, knowingly, fraudulently, and feloniously conspiring and agreeing with Willie Martin and divers persons to the grand jurors unknown to commit an offense against the United States, to-wit, to unlawfully and feloniously have in the possession and under the control of the said Willie Martin opium and compounds and salts and derivatives and preparations thereof, to-wit, 1 dram of morphine sulphate. There are 10 counts in the indictment, all charging the offense of conspiracy in the same general way. The overt act set forth in the indictment consists in issuing to the said Willie Martin a written prescription for 1 dram of morphine sulphate, and that he, the said defendant, did not issue said prescription in good faith; that is to say, that he then and there well knew that the morphine sulphate then and there prescribed was not given for medicinal purposes but for the purpose of supplying one addicted to the use of opium and the compounds, salts, and derivatives and preparations thereof. The other overt acts in the indictment are of the same general character.

The unlawful act, therefore, charged against the defendant, is not the improper or unlawful dispensing of a drug, whether in good or bad faith, but consists in having in the possession and under the control of Martin certain drugs. The indictment, therefore, can not be sustained unless the having in the possession and under the control of Martin of certain drugs is an unlawful thing and a violation of the act of Congress.

In reading the eighth section in connection with the remaining sections of the act of Congress, when it provides that it shall be unlawful for any person not registered under the provisions of this act to have in his possession certain drugs, I think that the word "person" should be held to refer to the persons with whom the act of Congress is dealing; that is, the persons who are required to register and pay the special tax in order to import, produce, manufacture, deal in, dispense, sell, or distribute. And there is no allegation in the indictment that Martin had

in his possession these drugs for any of these purposes.

The indictment, therefore, could not be sustained unless the mere fact of having the drug in his possession is a violation of the law. If so, any person would be presumptively guilty and subject to indictment, and have the burden of proof cast upon him under this section, if he had any small amount of the prescribed drug in his possession, without any reference to the purpose for which it was to be used, whether legitimate or otherwise.

On account of the view which the court entertains as to the scope of the act of Congress, the motion to quash the indictment is sustained and a general exception is noted to the Government, and they will be given any special exception that may be desired.

Original Articles

ENURESIS, A HABIT OR A DISEASE?

C. E. LUKENS, M. D.
Albuquerque, N. M.

Read before the Thirty-third Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 6, 7, and 8, 1915.

The answer to the question propounded by the title of this paper must necessarily be, Enuresis is both a habit and a disease, or to modify the last, we should say, a habit sometimes caused by diseased conditions.

But it is certainly not the disease which the layman or generally lay woman ascribes it too, that is a disease of the kidneys, for in my opinion the involvement of the kidneys is so seldom as to be negligible, polyuria is of course to be found as nervous accompaniment, and other diseases of the kidneys may be found,

and the doctor will take kidney involvement into consideration, but in my experience with many children at the institution of the Children's Home, I have yet to find one case of kidney involvement.

Again many of the laity will tell you that their child has bladder trouble, but it is seldom indeed that the bladder is involved.

Enuresis is a habit, as a general rule, with child patients. The trouble is neurotic in origin in at least nine case out of ten, and the treatment is directed toward the cure of a deranged nervous system, and its end is the re-establishment of the normal.

The first thing, of course, is an examination to discover if there is any derangement of the kidney or bladder.

The next step is to discover if there are any physical ailments that may be acting as irritants to the nervous system. The most common troubles are adenoids, diseased and enlarged tonsils, involvement of the prepuce or clitoris, constipation and auto-intoxication, especially of the bowels, malnutrition and anemia are also frequent contributors.

After such deviations have been given treatment, or if none be found, the next step is to be directed toward the cure of the incontinence itself.

We may take this up under three heads. Suggestive Therapy, Hygiene, and Medical or Surgical Treatment.

Suggestion is by far the most important, and while the removal of the irritant is always first, it is

likely that medicinal treatment is only important as helping to make easier the response to suggestion.

The use of atropine in increasing doses will sometimes do wonders, one case of a girl in Azuso, California, thirteen years old, who had a constant habit, was relieved permanently of the habit by the use of atropin re-inforced by a strong assurance that it was efficacious, and her aunt waking her during the first few nights at least for voluntary relief.

It is difficult to give the proper care and suggestive treatment outside of a hospital, the words and acts of the white aproned nurse, being much more impressive than those of the familiar mother.

The trouble, as I have stated, being neurotic in origin, in other words a bad habit, controlled by the child's subconscious mind and not amenable to its will power, in the ordinary sense, it is therefore not of much use to punish the child, in fact, even where it has seemed to come from pure laziness, I have found nothing gained in punishing the child, though much can be done by offering rewards for clean beds, and enlarging on the fact that they must try real hard and get up at the first feeling of need.

The habit must be changed by the substitution of other habit breaking up the associations connected with the bad habit and using every method to instill into the child's mind the positive assurance that the bad habit is going to be eradicated, and that it will never be troubled in this way. The mother—

or those first in charge of the child—were unable to prevent the establishment of the evil habit so it does not seem reasonable that they can be of much assistance in breaking it up. Moreover, a change of surroundings is distinctly beneficial whether it comes under the head of hygiene or suggestive treatment, at any rate it is advantageous to have a different bed, preferably with a hard mattress, some way to prevent the patient's sleeping upon his back, light, warm bed clothing and a well ventilated room, neither hot nor cold, about sixty-five degrees is the proper temperature for such a patient. It is better for the patient to be cool rather than warm.

A certain doctor uses light anaesthesia, so as to be able to suggest, in the dreamy state of the patient, that he will not wet the bed, but be able to waken at will, and in the hospital there is the night nurse to waken him, so that word is made good.

Proper diet and the regulation of the consumption of liquids is of the greatest importance. In some cases there may be too little water consumed, making an irritant, acid urine, but generally there is too much water consumed in the latter part of the day. It is the best rule to give the patient a large quantity of water in the forenoon, and none after 4 o'clock in the afternoon, the evening meal should be taken as nearly dry as possible, if the child complains of thirst, rinsing the mouth with water will often suffice.

It is well to make the child take an afternoon nap, and then the night

sleep will not be so absolute, but the child will waken more easily at the call of nature.

Nutritious food should be supplied, but no coffee or tea, and but little sweets, and practically no meats, early hours to bed, the mother or attendant waking the child the last thing before they retire, bowels should be kept open and regular habits encouraged. The child should be awakened, at first, by the nurse or mother during the night for voluntary relief.

It is well to encourage the child in waking hours to hold the urine as long as possible, in order to accustom the child to full distention of the bladder, this can be done by rewards, giving the child something it prizes to go as long as possible without soiling the clothing.

The attendant physician, nurse or mother should go about their task with sympathy and confidence, scolding, threats, etc., have never accomplished anything in my cases. But persuasion, suggestion, rewards, anything to assist nature to change the involuntary habit to an act of the will, will accomplish wonders. Holt tells us that "Careful, systematic, intelligent training is the most valuable adjunct to all measures employed for the relief of this very annoying condition."

In the surgical attention which should be given the patient I should like to mention a case of long standing incontinence in a girl of ten years of age. The incontinence was constant and offensive, and we did not seem to be able to accomplish anything by the usual methods, it

was finally believed that there was a relaxed condition of the muscles surrounding the urethral meatus, the case was placed under the care of Dr. E. B. Shaw and Dr. F. T. B. Fest, and after the operation and hospital care for sometime the cure was complete. I wish to incorporate in this paper the report made on the case by Dr. Shaw, describing the condition, and the original operation for its cure.

ADD DR LUKENS ARTICLE—MED JOURNAL

Case: Jessie K., age 11, a ward of the Children's Home Society, has suffered from nocturnal enuresis all her life, and for several months previous to operation, was unable to retain her urine during the day. This little child was placed in several families, but owing to this disagreeable affliction was returned to the Receiving Home. I treated her for a time with the usual remedies, such as belladonna, strychnia, etc., but without benefits. In conversation with Dr. Fest in regard to the case he suggested operation. Accordingly the matter was laid before Dr. Chas. E. Lukens, superintendent of the Children's Home, who readily consented to the operation. The case was sent to the Becker Hospital, and operated June 25, 1911. The usual aseptic precautions being observed, the child was anaesthetized, ether being used, and a deep incision was made on either side of the meatus urinarius. These incisions should be made as deep as possible. The longitudinal incisions were closed by sutures from above down, which transformed the wounds from vertical to horizontal ones. As will be seen this creates a buttress on either side of the meatus by banking up the tissues so as to close it by making mechanical pressure. Silk-worm gut was the suture material used. There was present in this case an hypertrophied and partially adherent prepuce, which was circumcised.

It is now nearly three months since the operation, with perfect control of the bladder, which seems to establish beyond all peradventure the efficiency of the operation in this class of cases, and justly entitles it to a place in our text-books of surgery.

WASSERMANN EFFICIENCY.

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Read before the Thirty-third Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 6, 7, 8, 1915.

There is no other branch of clinical pathology that has received the amount of attention during the past five years as has the Wasserman reaction. The literature that has piled up during this time on this subject is so extensive that it is confusing, not only from mere bulk but also from the multitude of individual opinions. These opinions are in turn caused by the variations in technique employed by different workers together with neglect of minor details that can be charged to the man collecting the blood for examination.

It is not my idea to go through a laborious account of the intricacies of the Wassermann technique but to consider the more obvious points with regard to their efficiency from the standpoint of results, detailed to the practitioner by the pathologist.

Briefly, the theory of the test is as follows: When a substance that can induce the formation of an antibody is placed with an inactivated serum containing these specific antibodies also containing fresh normal serum or complement there is a union of the antigen and anti-body. This union fixes or binds the complement. This union is evidenced by the fact that solution of the red cells does not take place when the hemolytic body or amboceptor is

added. The amboceptor having previously been inactivated it is necessary that it unite with fresh serum or complement to complete the hemolytic system.

There are four outstanding factors with regard to the Wassermann that have more to do with the variation in results than the combination of all others. First, the antigen used, second the corpuscles used, third, the collection of blood and fourth the treatment the patient has received.

The antigen that Wassermann used was an aqueous extract of syphilitic liver. Since that time the antigens have grown to be almost as numerous as the workers with this test, but the majority of these have been eliminated in favor of a comparatively small number. Wassermann's idea of his antigen at first was that it was specific, due to the great number of treponema in the lived used, but it was soon discovered that an extract of normal liver, heart, brain and a number of other organs would fix the complement in a certain number of cases. In the past few years a synthetic antigen has been used consisting of lecithin sodium glycocholate and taurocholate. This latter was superseded by a combined antigen consisting of extracts of heart or liver with the addition of cholesterol. Many workers are using this antigen today and we see very favorable results expressed by the workers with this antigen.

The antigen now generally used can be stated as being reduced to three. First, the acetone insoluble;

second, the combined antigen referred to above, and third, the alcoholic extract of syphilitic liver.

The acetone insoluble antigen, in my experience has been unsatisfactory for the reason that in many instances when using it parallel with the alcoholic extract it would show negative reactions when history, symptoms and the alcoholic extract test would all be in favor of syphilis. In favor of the acetone insoluble antigen it can be said that a large number of doubtful reactions are eliminated from the fact that reactions with this antigen are as a rule either distinctly positive or distinctly negative. The combined antigen has been used a much shorter period and the question with this antigen is whether or not it is too sensitive. It is reported by some that a certain per cent of normal people will give a positive test with this antigen. The fact of the hypersensitiveness of this antigen makes it next to impossible to distinguish a weak reaction. The alcoholic extract is perhaps the most widely known and used antigen and very properly so from my experience. A properly prepared alcoholic extract of foetal syphilitic liver will show no appreciable hemolytic or anti-complementary qualities and according to a series of tests run at the Kansas City General Hospital by me, will coincide more closely with the clinical history and symptoms than either of the above named antigens.

Several varieties of corpuscles can be used in this test. Sheep, ox, human and chicken corpuscles have

been used. The sheep and human cells being most generally employed. Both have their advantages as well as disadvantages. The sheep cells are much more easily obtained and rabbits into which they are injected respond with good amboceptor much more quickly than when human cells are used. Against the use of sheep cells is the fact that they are much less stable. That is, are much more easily broken up during the preliminary steps in the test as well as after the test is set up. Another grave objection to the use of sheep corpuscles is that a certain per cent of human serum contains anti-sheep amboceptor. By using the human hemolytic system the above objections are eliminated, excepting the amount of time consumed in producing good amboceptor and this is not to be considered where efficiency of the test is concerned.

The collection of the blood for the test at first glance appears to be of little or no importance. But it is here that many mistakes are made. It is necessary that all articles coming in contact with the blood be clean but it is not necessary that the container be sterile provided the blood can be delivered to the laboratory within a period of two or three hours. If this is not possible the container needle, and syringe should be carefully sterilized. If this sterilization is done by boiling it should be done, not with plain water, but in salt solution, preferably .9 per cent. This prevents hemolysis, which in some specimens is sufficient to discard then entirely or at least con-

fuse the end reading. On no account should the container, syringes, etc., be sterilized by immersing in alcohol.

The medication that the patient has received is in many instances not taken into consideration when the blood is withdrawn for examination. This, it seems to me, is too important to be disregarded and too frequently is the cause of confusing results. There is no hard and fast rule that can be made as to the effect of mercurials and arsenic on the Wassermann, however, there are certain safe limits within which we must keep in order to obtain dependable results. It is known that the old cases of lues show a more persistent Wassermann than early ones, as is very well illustrated by Swift of New York. He divides his cases of latent syphilis into two classes. First, those with a history of less than three years since infection and second those with three years and over. In the first class:

With no treatment he found

.....	90 per cent positive
After 6 months treatment	87 per cent positive
After 1 year treatment	70 per cent positive
After 18 mo. treatment	60 per cent positive
After 2 years treatment	55 per cent positive
In his second class with	

no treatment	100 per cent positive
After 6 mo. treatment	60 per cent positive
After 1 year treatment	47 per cent positive
After 18 mo. treatment	66 per cent positive
After 2 years treatment	60 per cent positive
After 30 mo. treatment	60 per cent positive
After 3 years treatment	40 per cent positive
After 4 years treatment	33 per cent positive
After 5 years treatment	25 per cent positive
After 6 years treatment	33 per cent positive

Swift explains the more direct influence on the Wassermann in the first class by saying that during this

stage the patients are more directly under the influence of treatment. In a majority of cases one injection of Neo-Salvarsan will not produce a negative reaction, in some, however, it will and for a variable length of time, from one to six months. On the other hand, Salvarsan is much more likely to produce a negative reaction than Neo and the negative reaction persists longer than with Neo. Captain Craig of the U. S. Army, stationed at Ft. Leavenworth, Kansas, has done considerable work with the two arsenic preparations and he has practically discarded Neo-Salvarsan in favor of Salvarsan, basing his observations on the Wassermann reaction. It is well to mention the provocative reaction here. It is not infrequent that old cases showing a persistent negative reaction will show a positive after a week's mercurial treatment or after an injection of Neo-Salvarsan. This is due to a previously quiescent lesion liberating the anti-bodies in the blood stream and often times will clear up a doubtful diagnosis. On the whole it is best to keep to the patient off treatment either mercurials or arsenic for from one to three months, depending upon the stage of the disease. With the above precautions carried out as closely as is possible on approximately three thousand cases at the Kansas City General Hospital my results were as follows, eliminating cases with no history or symptoms of the disease.

Primary after fourth week from

appearance of chancre	88 per cent
Secondary	98 per cent
Tertiary	70 per cent

Tabes on blood serum	68 per cent
Tabes on spinal fluid	90 per cent
Congenital lues	100 per cent

The luetin reaction I have left to the last and will mention it only because it was included in the subject given on the program. Realizing that the eighth paper in one afternoon is rapidly approaching the restless stage of the listeners I will say but a few words regarding it. The luetin test was for me very unsatisfactory and at best a poor makeshift as compared to the Wassermann. True some cases reacting negative to the Wassermann will show a positive luetin but my experience shows this to be true only in old treated cases or in some ten or fifteen per cent of cases showing a negative Wassermann. In such cases the luetin is useful but not to the extent of equaling or superseding the Wassermann reaction as an aid in diagnosis.

SPECIFICS IN MEDICINE.

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Roswell, New Mexico.

Read by title before the 33rd Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 6, 7, and 8, 1915.

It is not strange that out of the misty ages of semi-religious and empirical medicine, there should have evolved so few medicines that could be properly classed as specifics. The slow diffusion of knowledge in anatomy, physiology and pathology has been a great barrier to progress. Until recently the study of chemistry, pharmacology and physiological chemistry has

been—and yet is—the intricate problems connected with bacteria and their product.

The pharmaceutical and biological manufacturer has contributed to the state of chaos in the minds of many physicians, by their attempts to have every conceivable proprietary product used as a specific—not only for curable, but incurable diseases as well. No physician should waste his time listening to the fabulous tales of the oily tongued detail man. No less disgusting is the free advertising pamphlets masquerading under the name medical journal, laden with false and unreasonable claims. The fact that they continue to come signifies that they are read somewhere and create a demand for these fraudulent specifics. A new abuse has arisen in the form of animal therapy and mixed vaccines which is polypharmacy of the rankest order. These are a just reproach on modern medicine. It should not be hard to differentiate between the worthless and those worthy of trial, yet I personally know many physicians who habitually use every substance lauded by the proprietary concerns regardless of their senseless claims.

Jenner's contribution, in 1798, marks the beginning of a specific prophylactic treatment by the use of vaccine—one of the truly great contributions, made the more so when we consider the average standard of medical thought of the time. Almost a century must pass before the giant minds of Behring and Kitasato could produce anti-

toxins that would prove an absolute protection against the occurrence of diphtheria and tetanus infections. Pasteur followed quickly with his attenuated virus for the protection against rabies. The recent introduction of vaccination against typhoid is a more recent addition. The report of the United States Army medical corps shows how this great prophylactic specific has reduced the incidence percentage of typhoid fever more in three years than the combined sanitation efforts of the previous centuries. Its use in private practice has not been given a wide trial, however, in the face of epidemics, in which its use has proven its merit beyond question.

Recently there has been a scientific effort to produce a vaccine with technique that would produce active immunity against the incidence of tuberculosis in children. Von Ruck has reported some success but not sufficient time has elapsed to determine the results in a conclusive manner. It is to be hoped that this valuable work may be placed on the same unquestioned basis as the other specific prophylactics—vaccines of tetanus, diphtheria and typhoid. The slow progress in the prevention of tuberculosis, and its universal distribution, would make the introduction of this specific immunity outrank any previous specific in use, whether prophylactic or curative.

Our highest duty as physicians is to prevent disease. We have made long strides in this direction, but I raise the question: Are the

rank and file of the profession not slow in taking up these methods whose value is well established?

Mercury has been our standard specific for centuries. Can you conceive the enormous good this grand old patriarch has done for the unfortunate sufferer in past centuries? Arsenic in chorea and quinine in malaria have likewise enjoyed our esteem as trustworthy specifics. These specifics are the result of a long period of empiricism.

Atropine and eserine are due to a later period—dependent more on studies in anatomy, physiology and chemistry. Thyroid extract is also a product of this period. While the effect on hypothyroidism is specific in that it produces a symptomatic cure, it does not cure but supplies the necessary defect only so long as the product is taken.

Coming to the modern period of our incessant search for specifics, we find that there is a feeling that they will be, and are being sought out along lines established by the basic sciences of medicine. We have a right to expect that there will be no more long intervals of empiricism without any visible results.

The late lamented Ehrlich produced salvarsan and neosalvarsan following a definite plan that was based on facts already established, working from the known to the unknown he found what he had a right to expect. The work on ipecac, while more fragmentary, has produced a remedy that has proven a specific in amoebic dysentery and probably in pyorrhea alveolaris as

well. Here the problem was to eliminate the toxic elements and retain the specific principal which was found to be emetine hydrochloride. These discoveries are wonderful as they not only furnish efficient weapons to combat diseases but they are of great value as indicating the path to success in many similar conditions.

Behring's diphtheritic antitoxin continues to hold first place as a curative specific, but only for diphtheria. I wish to mention the tendency to use antitoxin in a wide range of conditions where it looks irrational and has proven dangerous to a degree that should condemn this empirical experimentation. Flexner's antimeningitis serum is a well established specific in epidemic cerebrospinal meningitis but only in this form of the disease. This serum is dissimilar to other serums in that it is not an antitoxin but has a specific action on the bacteria. Tetanic antitoxin has proven disappointing as a curative serum. Its use is successful in a small percentage of cases due no doubt to the location of the toxin. The general rule has no exception, that the earlier each is used the better the results. I shall avoid discussing tuberculin.

The busy field of serum therapy has proven, on the whole, somewhat discouraging. Out of the numerous serums, vaccines and bacterins produced, there are so few with well established specific action, yet the ratio to established specifics other than serums is relatively high. Perhaps we should be encouraged

rather than discouraged by the facts. That we have only worked the edges of this productive field of prophylactic and curative medicines seems evident.

Let us indulge the hope that specific remedies may come even faster in the future than in the past. Is there not reason to expect this? When the time shall have come that we have a specific for the prevention and cure of diseases, then will medicine be truly scientific.

REMOTE EFFECTS OF ELECTRICAL SHOCK.

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Roswell, New Mexico.

Read before the 33rd annual meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 6, 7 and 8. 1915.

When the request was made a few weeks ago for a paper on this subject I was unaware that so little had been published. A search of the larger medical libraries of the United States gave results that were very unsatisfactory. Had we known that our efforts would have been so non-productive the invitation would, most certainly, have been declined. We feel that this apology, as a prelude, is absolutely essential in inflicting on this intelligent body a paper that presents so little of value.

It is not our object to consider, under this heading, the various non-fatal effects of electric shock, but to confine its scope to that class of cases wherein the death of the individual results within a few hours,

or days, following the receipt of the injury.

While more than one thousand deaths from lightning are reported annually in the United States, our literature is lacking in the pathology existing in this class of fatalities. We have been able to gather a report of 365 cases in which the immediate effects of the shock were not fatal, of whom fifteen subsequently died from the remote effects, yet we are in ignorance as to the exact cause of death in any of the cases.

With laboratory and industrial currents, where the voltage, amperage and resistance are known, much has been learned by observation and experimentation. We know that death from a low voltage is due to the arrest of the heart with ventricular fibrillation, while in high voltage the ventricles continue to beat and death is caused by failure of respiration. We have also learned that under both conditions of voltage the blood pressure is increased two or three times its original value before death. We know that the alternating current is more fatal than the continuous and that an alternating current at 150 per second is twenty times as fatal as one of a frequency of 1720 per second. Death has been reported from alternating currents as low as sixty-five volts.

Electrocution, as carried out in the various states that have adopted this form of capital punishment, where the exact force and flow of the current are known and the resistance is reduced to a minimum,

teach us but little as to the cause of death in that large number of cases of fatal shock from industrial currents and lightning, where it is impossible to know the exact voltage and the amount of resistance.

In experiments on the lower animals it has been found that alternating currents of high voltage and frequency, where the resistance is great, or the current not applied long enough to cause instant death, give signs of great involvement of the nervous system. Death in these instances has occurred hours and days later, the post mortem findings showing marked changes in many of the tissues.

In those cases of injury by lightning we are at a loss to know, even approximately, the voltage or the amperage and the duration of contact. Both the A and B flashes may be fatal, as it is estimated the voltage is well up in the millions.

The duration of a flash of lightning is from 1-200 to 1,100,000 of a second, so in any event the contact is brief. Flashes are very much unlike the picture as presented by our vision. Photographs reveal that the flash is from earth to clouds and multiple and branched. It is an alternating current of very high frequency. Unlike the direct current it does not always follow the line of least resistance, but is given to side flashes, as leaving a lightning rod to enter a building. It is this feature that doubtless explains the fact that where many are present at the point of the stroke some may be killed, some die subsequently and others may recover

with no apparent ill effects.

In the literature at my command the following reports are of interest:

A man, age not stated, of good health, developed acute Bright's disease.

The post mortem findings in another case where death resulted in seven hours following the shock, were, in brief, petechial hemorrhage in the pericardium, hemorrhage in the cortex, urine deeply stained, irregular masses of colored matter from destruction of blood cells, ganglion cells in a state of coagulation necrosis, marked changes in the cells of the medulla and cord, destruction of the osmotic membrane of red cells and of the nerve cells.

In another case, that of a young man who was shocked while repairing a lightning rod, there was anuria for 48 hours. Under saline injections 400 cc of bloody urine was secured on the third day. The haematuria continued for 48 hours; death occurred on the twentieth day and the autopsy showed degenerative changes in heart, lungs, spleen and kidneys. Had microscopical examinations been made it is probable that here, too, would have been found destruction of the osmotic membranes, as the urine indicated haemoglobin liberation.

This paper was prompted by the recent death of one of our prominent citizens, a man 52 years of age, in one week after a shock by lightning. That he was in good health is testified to by the fact that an esteemed fellow, Dr. W. T. Joyner,

had but a short time previously examined him for life insurance and found him to be a first class risk.

The history, as nearly as can be secured, is as follows:

While in the country east of Roswell, at one of the ranches in which he was interested, he and his son were rendered unconscious by a flash of lightning. The son regained consciousness before the father and assisted him to the ranch house. The father complained of numbness, nervousness and a peculiar feeling in the left thoracic region, but did not believe the condition serious enough to demand medical attention. He continued on the ranch headquarters and attended to some of his correspondence. He walked, talked and ate well and advised his friends that he anticipated no ill-effects from the lightning. While seated in a chair discussing business affairs with his foreman he fell unconscious and died almost instantly. As there was not a physician present and an autopsy not held, the exact cause of death is unknown. It is probable, in the light of the findings in the cases cited, that death was due to changes in the nerve cells which resulted in paralysis of the centers of respiration and circulation, yet it is possible that the temporary high blood pressure at the time of the shock, may have so injured the blood vessels of the brain that death was the result of cerebral hemorrhage.

CHOREA.

C. M. YATER, M. D.
Roswell, New Mexico.

Read by title before the 33rd annual meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 6, 7, and 8, 1915.

I shall only promise you one thing interesting in connection with this paper and that is, it shall be brief.

To undertake to go into in detail, all forms of chorea, would set at naught this determination, so I shall confine my remarks to: Acute Chorea, Sydenham's Chorea, commonly denominated St. Vitus' Dance. Recent writers define this as a disease due to the effect of some infection or its toxin on the central nervous system, characterized by irregular, involuntary muscular action, giving rise to purposeless movements of the body or some of its members. It occurs most frequently between the ages of 5 and 15 years in the ratio of about 3 female to one male. It is rarely seen before the fifth year and the incidence decreases beyond the 15th year and is very rarely seen only in the Caucasian race. Climatic influences do not appear as a causative factor except in so far as a vicious climate may lower the vitality of the subject.

Children in the school age, children of a nervous temperament who make close application to their studies are largely in the preponderance. Certain children, from their peculiar make up, are peculiarly susceptible; such children, usually females, show an extreme

excitability, are fidgety, the arm and leg movements naturally quick or jerky and seem to be in a state of high nervous tension, are easily excited and will start at any unusually quick or loud noise or when spoken to suddenly. When such children have Sydenham chorea it is difficult to distinguish between the normal and abnormal movements, or where the normal leaves off and the abnormal begins, especially is this so in convalescence.

On such a soil as this it takes very little intoxication of the nervous system from a relatively mild infection, rheumatic, for instance, to usher in a decided chorea. Some sudden emotion, as fright, excessive mental strain, may be the determining factor. When it comes to the real cause or causes of chorea, writers seem to be about as much in the dark as they were in the sixteenth century. While chorea is recognized as a syndrome, the result of the action of an infectious toxic agent upon the central nervous system, still, Osler says: "It must be admitted that a satisfactory conclusion has not yet been reached concerning the specific infecting agent or toxin."

Many writers associate it with rheumatic fever, about 25 per cent of cases presenting rheumatic symptoms. One noted writer, Macalister, of England, I think, who, it appears, does not believe that chorea is at all dependent on the rheumatic infection, arrives at this conclusion from the fact that while the toxin in the blood plasma of chorea is toxic to the leucocytes of healthy

persons, the blood plasma in cases of rheumatism is scarcely at all toxic, and that the plasma from chorea cases was toxic to the leucocytes of rheumatic cases, thus demonstrating that the infecting agent or toxin of the two conditions are not the same.

We must consider that childhood is a favorite period for rheumatic pains and conditions as it is also for the incidence of chorea and that an infection in childhood is likely to be associated with vague pains; also that many other diseases, as gonorrhoea, syphilis, influenza, tuberculosis, osteo-myelitis, erysipelas, pneumonia and many others are associated with single and multiple arthritic manifestations that are often denominated rheumatism, etc.; consequently all these diseases have from time to time been regarded as causes of chorea. Any condition, whether infectious or not, if it lowers the vitality and thereby lessens the nerve tone, renders the child more susceptible not only to chorea but to other functional nervous disturbances. As to the bacterial origin of chorea, that has never been proven. Many micro-organisms have been found at autopsy in chorea cases, but no one kind in sufficient number of cases for one to say conclusively and beyond a doubt that this or that particular organism is the specific infecting agent. The fact is, it is extremely doubtful as to there being any specific organism responsible for chorea. Certainly none has ever been demonstrated. It is more likely to be the action of toxins of one, sev-

eral or many micro-organisms together on the central motor nervous system than the organism itself.

Chorea has no definite pathology. No condition has been found that could not be found in other diseases which have an entirely different train of symptoms. Many and various claims have been heralded abroad as pathological for chorea only to be swept aside by the avalanche of criticism. Much has been written but nothing is known of the pathology, even if it has any pathology peculiar to itself, which I seriously doubt.

Cases of chorea divide themselves into three classes: according to the severity and symptoms; Mild; Severe, and Malignant or Chorea Insaniens. The mild class comes on gradually with a prodromal period of a week or so. The child is listless, slightly depressed, nervous with loss of appetite. As time passes the nervous symptoms become more manifest and develop into an irregular, jerking movement of one or both upper extremities.

Children in this stage will drop articles, such as books, dishes, etc., not because there is any paralysis or loss of strength in the arms but on account of a sudden relaxation of the muscles of the hand synchronous with the jerking movement. The choreic movements may be confined to one arm, or one arm and the leg of the same side, or all the extremities, both upper and lower may be involved. In this form there is usually some change in speech, noticeable only to those in intimate association with the child. In the mild

class the movements cease during sleep. In the great majority of cases the disease does not progress beyond this mild stage, but in some it may pass into the severe or violent class, while others will assume the severe form from the beginning in which all the symptoms are intensified, so much so that the child is unable to help itself. In these severe cases practically all the voluntary muscles of the body are affected to such an extent that the movements do not cease during sleep. I call to mind several cases in my limited experience in which the patient's rest was materially interfered with on account of the movements being so violent as to awaken the patient from sleep. In most all the severe cases the speech is very materially interfered with, so much so, in many cases, that it is with difficulty that the child is able to make its wants understood. This disturbance of speech is frequently due to an irregularity of the respiratory rhythm and with this irregularity of respiration irregularity of the heart action is often found. In the severe form the mental symptoms are also accentuated. There is frequently an elevation of temperature from one-half to one degree above normal. Any decided elevation of temperature suggests that some complication should be diligently sought for.

Malignant chorea may be the termination of the severe form, or it may be malignant from the beginning. This form is not often encountered in the younger children, but occurs more frequently as adult

life is approached. There is frequently some intense anxiety operating as an etiological factor; pregnancy, also is often an important etiological factor. In this malignant form the choreic movements become intense, universal and constant, interfering with sleep to such an extent that rapid exhaustion occurs. There are outbreaks of delirium, hallucinations, delusions and mania with the temperature rising to 104 degrees or over, usually resulting fatally. An important complication and one that should always be sought for and kept in mind during an attack of chorea is endocarditis, which is said to occur in from 25 to 50 per cent of all cases.

The prognosis in the mild cases and also in the severer form is favorable, and many of the malignant cases will recover though the prognosis in this last class is regarded as unfavorable.

But little need be said about treatment. The first and most important item is *rest, absolute rest in bed*. Just as soon as the choreic movements begin to manifest themselves the patient should be put to bed, no matter what class the case falls in, because even in the beginning mild cases you never know when violent symptoms may set in and by putting the patient to bed early many cases may be confined to the mild class that would pass on into the severer forms if allowed to stay up. Rest in bed, good, nourishing food and the proper attention given the emunctories of the body

comprise the longest and most important step in the treatment.

Arsenic, in small doses, never pushed to tolerance or anything like it, iron, of which I prefer the dialyzed, as tonics. In the severe and malignant classes some sedative is needed to control the jerking movements, especially when the patient cannot sleep. Of sedatives there are none more to be preferred in these cases than chloral hydrate to which may be added potassium bromide, 5 to 10 grains or more of each, according to age and severity of symptoms, given 4 to 6 times in the 24 hours.

Of course in giving chloral the heart must be carefully watched. Hyoscine either orally or hyperdermically is also a good sedative.

Rheumatic symptoms should be met with the salicylates. Practice the child in trying to lie quietly for force of will power, especially in convalescence. The disease will run from 5 to 10 weeks or longer in many cases, even under the best of treatment.

MILK-BORNE TYPHOID FEVER.

Report of an Outbreak at Gallup, N. M.

By F. C. Smith, Surgeon, United State Public Health Service.

The investigation, of which this is a report, was made in compliance with a request to the Surgeon General, United States Public Health Service, from the mayor and health officer of Gallup, October 15, 1915.

Character of the Outbreak.

About 80 cases of sickness occurred in the town of Gallup be-

tween September 18 and October 12, 1915, which were diagnosed by some of the local physicians as typhoid fever, but by others as "mountain fever" and "bilious mountain fever," by which it appears was meant a disease similar to but quite distinct from typhoid fever. The epidemic was characterized by the presence of many mild and abortive cases. Constipation was the rule. There was apparently no prevailing gastro-enteritis, which so commonly precedes or accompanies an outbreak of typhoid. The initial symptoms were often those of influenza. The fever sometimes reached normal at the end of two weeks, and many patients were confined to bed for only a few days. On the other hand, there were a number of severe cases of typical typhoid fever, with five deaths, and the mild form of fever prevalent had many of the characteristic symptoms and physical signs of typhoid.

Diagnosis.

Blood drawn from six of the doubtful cases, on the morning the investigation was begun, and sent to an Albuquerque laboratory, was reported by wire on the following day, October 19, positive in each case for the agglutination test. Further confirmation of the diagnosis of typhoid was subsequently received from the United States Hygienic Laboratory, where specimens of blood had also been sent.

Immediate Suppressive Measures.

A preliminary survey made October 18 had shown that nearly all the cases of fever occurred upon the

route of the principal dairyman. A visit to his farm, 3 miles below the town, revealed the fact that the premises, including the well, had been flooded about six weeks previously with water containing the effluent from the town sewer which discharged into an arroyo, the Rio Puercos, about $2\frac{1}{2}$ miles above the dairy farm. An improvised pasteurizing plant was made and installed under the writer's direction on October 19 and began operation the same day. The problem of pasteurization was simplified by the fact that the milk was bottled at the distributing station in town, at which place pasteurization of the finished product was undertaken.

At this time, October 19, it seemed possible that there might be other sources than the one dairy. Accordingly, the local press was requested to give notice that as a temporary measure all drinking water should be boiled and all milk not pasteurized when delivered should be scalded. It is not probable that any large number of persons heeded this warning.

Measures were taken to secure a visiting nurse for the teaching of bedside prophylaxis, and she arrived a few days later. A circular of instructions, "Measures to prevent the spread of infection from the bedside of a typhoid fever patient," the same being an excerpt from Public Health Bulletin No. 69, was also printed for distribution. The local druggists were advised to stock with quantities of chloride of lime, for which there was a heavy demand when the visiting nurse ar-

rived and attendants on the sick were more carefully instructed in preventive measures.

Detailed Investigation.

Water Supply.—All water at Gallup is from cased and sealed driven wells, from 400 to 1561 ft. deep, distribution being made from a municipally owned piping system reaching all parts of the town. Town well No. 1, 1,118 feet deep, contained 8 colon bacilli per cubic centimeter. A large underground concreted mixing cistern near by had a large crack in the bottom, through which water passed out from the filled cistern, or in from the supersaturated subsoil whenever the cistern had been nearly emptied by the force pump supplying the mains. An old, insanitary vault privy was located 50 feet from the cistern and 60 feet from the well. About 30 families lived on the steep, unsewered street immediately above the well and cistern. The log of the well shows the first 75 feet to be "wash, with streaks of sand."

Milk Supply.—Gallup has one principal dairy, A, which supplied 186 households. It delivered milk to private families in bottles, and to two soda fountains, X and Y, in cans. Its customers included several boarding houses and small restaurants. Milk was furnished by 13 cow owners, in small amounts, to 84 other families, while 6 owners supplied themselves only. There are about 425 households in the town, of which the remaining 149, comprising the poorer people, used no fresh milk.

Soda fountain X dispensed ice

cream purchased in Albuquerque, but sold milk shakes and malted milk made with raw milk from dairy A. Soda fountain Y sold milk shakes and also made its own ice cream, mixing milk from dairy A with cream shipped in from a Colorado town. This ice cream was sold over the counter and was marketed at Holbrook, Ariz. It was also peddled on the streets of Galup and at five near-by mine towns, the largest of which, Allison, has an estimated population of 560. None of these mine towns received milk from dairy A in any other way, nor did they use Gallup water.

Sewage disposal.—The municipal sewer ramifies to all major parts of town and discharges about one-half mile below into the Puercos, which is a dry arroyo part of the year and a considerable stream only after rains. Unscreened, uncleaned privies of primitive type are in common use and are found throughout all parts of the town. Some overhang the Puercos, which also receives the surface wash from both hillsides on which the town is built as well as the effluent from a sewer from the Atchison, Topeka & Santa Fe roundhouse and shop near the upper end of town. A privately owned sewer drains about a dozen houses on the south side of the Puercos and discharges one-fourth mile above the municipal sewer outlet. In the sand of the Puercos children play, and to the course of the stream for several miles below the town cows have free access. Through the Puercos below the sewer outlets, thousands of sheep are driven to the

railway's shipping pens located on the bank at this point. Dairy A, located $2\frac{1}{2}$ miles below the sewer outlet, is usually protected from floods in the Puercos by the railroad embankment, which extends down the left bank past the farm, but the flood above-mentioned had dammed the Allison branch line railroad bridge, and the Puercos, thus diverted, had carried away about 200 yards of the main-line embankment and had swept waist deep over the dairy premises. This same torrential downpour flooded many privy vaults in town and swept their dissolved contents down both hillsides into the flood, which thus contained representative fecal contamination from all parts of the town, both sewered and unsewered.

Sanitary History of the Town.

In New Mexico deaths, births, and disease are not regularly reported. Burial permits are not required, nor is the calling of a physician mandatory in any case. Gallup is no exception, but by careful inquiry among the physicians it was found that 10 cases of fever, 6 certainly and 4 probably typhoid, had occurred in town between February 25 and September 5. These pre-epidemic cases appeared to be unrelated to each other although 5 were in persons employed in or frequenting the railroad yards. Insanitary privies were used by all these patients, and during the first week of the disease, disinfection of excreta was usually omitted. Flies were plentiful until October.

The county health officer is paid

only \$300 per annum, the usual salary in New Mexico, which sum seems to be intended for the care of patients at the county hospital. It does not appear that anyone is directly charged with the protection of the water or milk supply, or with any other sanitary duty. A casual inspection of dairy A would have shown evidences of the flood and pollution. An employe of this dairy was admitted to the county hospital, September 20, for typhoid, and the brother of another died of typhoid October 2. In the first 65 cases studied, 61 patients used this milk either as a beverage or on cereal. Mrs. J. nursed her son through an attack of typhoid fever, meanwhile waiting on table at a restaurant. Her privy, primitive, leaky, and

foul, was only 150 feet from the leaky cistern near pump No. 1 and directly up the hill from that point. The milk-borne infection might easily have become water borne and hence more general. It was no one's business to detect and correct such gross lapses in sanitation. Not a cent of money was spent in prevention.

At this point in the investigation an improvised hypochlorite plant for treating the city water was introduced, the same being a modification of that described in Public Health Reports, October 9, 1914, pages 2709-2715, "The chemical disinfection of water," by Earle B. Phelps, professor of chemistry, Hygienic Laboratory.

Table 1.—Showing number of cases according to date of onset and relation to milk supply.

	Families supplied	Feb. 25.	Mar. 5.	July			August			September													
				13	14	23	25	27	*5	11	18	19	20	21	22	23	24	25	26	27	28	30	
Dairy A	186	1	—	—	—	—	—	1	1	—	—	2	1	3	1	2	2	1	2	5	2	6	†3
All other sources fresh milk	90	—	1	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
No fresh milk	149	—	—	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown	—	—	—	—	—	1	—	—	—	—	—	—	—	†1	—	—	—	—	—	1	1	1	—
				October																			Total cases
				1	2	4	5	6	7	8	9	11	12	14	15	16	17	18	19	20	22		
Dairy A				7	4	6	4	3	2	4	2	2	1	1	1	1	2	2	2	1	1	79	
All other souces of fresh milk				—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	4	
No fresh milk				—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	
Unknown				—	—	\$2	—	—	—	—	—	—	—	—	\$†2	—	—	—	—	1	—	10	

* Last of a series of floods, one of which inundated dairy A.

† Holbrook, Ariz., cases. Ice cream from soda fountain Y. Date of onset approximate.

‡ Employed at dairy A and living on the place.

§ Dairy A milk on home table.

§ One patient had dairy A milk on home table.

§† One patient was employed at dairy A and lived on the place.

Table 1 shows 96 case of typhoid studied. There were undoubtedly others. Nine were pre-epidemic cases occurring between February 25 and September 5. Of the 87 epidemic patients, 76 consumed milk from dairy A. Of the 11 remaining, 2 were employed at the dairy and 3 others are known to have been on its route. The inference is permissible that these 5 patients used milk from this dairy, but only those who are definitely known to have done so are so charted. Of the remaining 6, one received milk from another dairy, but in bottles belonging to dairy A; 4 histories were not obtainable; 1 patient, a boy who frequently played in the Puercos, was definitely known not to have taken infected milk.

The epidemic cases traceable to dairy A gave the following history as to the manner in which milk was consumed:

As a beverage; this includes those taking milk shakes and malted milk from dairy A at soda fountains	60
On cereal and fruit or on bread and milk, but not as a beverage	9
In hot coffee only	*1
In ice cream only	5
In ice cream and also hot coffee	1
Total	76

* This patient may have been infected by contact, as she sickened Oct. 11, having nursed her husband for typhoid since Sept. 19.

Ice Cream.

It is remarkable that only six cases were traceable to infected ice cream. This commodity, made with raw milk from dairy A, was sold extensively both in Gallup and at the mines until October 2. At the Allison mine alone from 7½ to 10 gal-

lons per week were sold, largely to children, but no case of fever appeared at this place.

One of these six cases was secondary to a previous one in the same house and may easily have been due to contact. Three were out of town cases reported by Dr. J. W. Bazell, superintendent of the board of health, Navajo County, Holbrook, Ariz., who believes that he excluded every source of infection except ice cream from Gallup, containing raw milk from dairy A, which these patients are known to have consumed.

The age distribution of cases, counting the entire series, was as follows:

Under 11 years	38
11 to 20 years	28
21 to 30 years	13
More than 30 years	17
Total	96

The usual frequency of multiple cases in the same household occurring about the same time, common in milk infections, was found, as follows:

2 cases in same house in 7 instances.
3 cases in same house in 4 instances.
4 cases in same house in 2 instances.

Other possible sources of infection were investigated with negative results. Ice, fruit, green vegetables, and shellfish were found unrelated to cases. In all, except the Holbrook cases, the patients drank the same water. Three cases at the Gibson mine, among persons frequently visiting Gallup, are included in the series.

Recommendations.

The final report, handed to the

local authorities on October 26, contained the following recommendations:

1. Typhoid and other contagious diseases to be reported to the health officer and preventive measures taken in each case.

2. Dairy A to continue pasteurization permanently. All dairies to be frequently inspected.

3. All insanitary privies to be replaced by toilets with sewer connections, or by an approved type of privy.

4. All specifically infected privies to be cleaned and disinfected.

5. Thorough sanitation of the neighborhood of the infected well and cistern, and abandonment of the latter. Continue the hypochlorite treatment of water supply until repeated tests of 30 cubic centimeters of raw water show absence of colon bacilli.

6. Fly-suppressive measures.

7. Free laboratory examination of suspected typhoid specimens.

8. Extension of sewer mains to unused sandy flats near by; and construction of filter beds well protected from floods and fenced.

Acknowledgments.

It is a pleasure to acknowledge the ready and thorough cooperation of all the physicians in Gallup, each one of whom gave valuable assistance in furnishing data for the study, and with unfailing courtesy.

(Public Health Reports, Jan. 14, 1916).

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy

and Chemistry of the American Medical association for inclusion with "New and Nonofficial Remedies:"

Calcium Phenolsulphonate, P. W. R.—A non-proprietary brand of calcium phenolsulphonate admitted to New and Nonofficial Remedies. Powers-Weightman-Rosengarten Co., Philadelphia, Pa.

Iron Lactate, Merck.—A non-proprietary brand of ferrous lactate admitted to New and Nonofficial Remedies. Merck and Co., New York.

Sodium Phosphate, Monobasic, Merck.—A non-proprietary brand of sodium acid phosphate admitted to New and Nonofficial Remedies. Merck and Co., New York.

Phloridzin, Merck.—A non-proprietary brand of phloridzin admitted to New and Nonofficial Remedies. Merck & Co., New York.

Sulphanilic Acid, Merck.—A non-proprietary brand of sulphanilic acid admitted to New and Nonofficial Remedies. Merck and Co., New York.

Ergotin, Merck.—A non-proprietary brand of extract of ergot, purified, admitted to New and Nonofficial Remedies. Merck and Co., New York.

Antithyroidin-Moebius Tablets, $\frac{3}{4}$ gr.—Each tablet contains antithyroidin-Moebius $\frac{1}{4}$ gr. Merck and Co., New York.

Equinine Tablets, 2 grs.—Each tablet contains equinine 2 grains. Merck and Co., New York.

Equinine Tablets, 5 grs.—Each tablet contains equinine 5 grains. Merck and Co., New York.

Ferratin Tablets, $7\frac{1}{2}$ grs.—Each tablet contains ferratin $7\frac{1}{2}$ grains. Merck and Co., New York.

Stypticin Hypodermis Tablets, $\frac{3}{4}$ gr.—Each tablet contains stypticin $\frac{3}{4}$ grain. Merck and Co., New York.

Stypticin Sugar-Coated Tablets, $\frac{3}{4}$ gr.—Each tablet contains stypticin $\frac{3}{4}$ grain. Merck and Co., New York.

Stypticin Dental Tablets, $\frac{3}{4}$ gr.—Each tablet contains stypticin $\frac{3}{4}$ grain. Merck and Co., New York (Jour. A. M. A., Jan. 1, 1916, p. 31).

Dionin Tablets, $\frac{1}{4}$ gr.—Each tablet contains dionin $\frac{1}{4}$ gr. Merck and Co., New York.

Dionin Tablets, 1 gr.—Each tablet contains

dionin 1 grain. Merck and Co., New York.

Theophyllin Sodium Acetate Tablets, 0.15 Gm.—Each tablet contains theophyllin sodium acetate 0.15 Mm. Merck and Co., New York.

Triphenin Tablets, 5 gr.—Each tablet contains triphenin 5 grains. Merck and Co., New York.

Tubes Tropacocaine Hydrochloride, Sterilized, 1 gr.—Each tube contains tropacocaine hydrochloride, 1 grain. Merck and Co., New York.

Veronal-Sodium Tablets, 5 gr.—Each tablet contains veronal-sodium 5 grains. Merck and Co., New York.

Iodipin Tablets, 3 min.—Each tablet contains iodipin 3 minims. Merck and Co., New York.

Apiol-Merck.—A non-proprietary brand complying with the standards for apiol. Merck and Co., New York.

Creosote Carbonate-Merck.—A non-proprietary brand complying with the standards for creosote carbonate. Merck and Co., New York.

Phenolphthalein-Merck.—A non-proprietary brand complying with the standards for phenolphthalein. Merck and Co., New York.

Quinine Tannate-Merck.—A non-proprietary brand complying with the standards for quinine tannate. Merck and Co., New York.

Sodium Nucleinate-Merck.—A non-proprietary brand complying with the standards for sodium nucleate. Merck and Co., New York (Jour. A. M. A., Jan. 8, 1916, p. 117).

Swan's Typhoid Bacterin (No. 44) (prophylactic).—Marketed in packages (hospital) of thirty-six vials and in packages (board of health) of seventy-two vials. Swan-Myers Co., Indianapolis, Ind. (Jour. A. M. A., Jan. 15, 1916, p. 191).

Radio-Rem, Outfit No. 5.—An apparatus designed for the production of radioactive drinking water by the action of radium sulphate contained in terra cotta plates. It consists of two plates contained in 250 c. c. bottles; when the bottles are filled with water the two plates impart about 3.6 microcurie (10,000 Mache units) to 500 c. c. water daily. For action, uses and dosage refer to the article on radium in New and Nonofficial Remedies. Schieffelin and Co., New York (Jour. A. M. A., Jan. 15, 1916, p. 191).

Diphtheria Immunity Test (Schick Test).—This test is intended to determine those persons who have not in their blood an amount of diphtheria antitoxin sufficient to render them immune to diphtheria. The test is of special value for use in institutions and among groups of persons exposed to diphtheria, in order that it may be determined which individuals should be given an immunizing dose of diphtheria antitoxin. It is also of value in the diagnosis of other conditions simulating diphtheric infections.

Diphtheria Toxin Standardized (Schick Test).—Marketed in sealed capillary tubes each containing a solution of one-fiftieth of a minimal lethal dose for guinea pigs of diphtheria toxin. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Jan. 15, 1916, p. 191).

Dimazon. — Diacetylaminoazotoluene.—An orange colored powder, insoluble in water but soluble in alcohol, chloroform, oils, fats and petroleum. It does not stain the hands or cloth. It is said to be useful to promote the growth of epithelium in the treatment of burns, wounds, chronic ulcers, etc. Dimazon is marketed as follows:

Dimazon Oil.—2 per cent.

Dimazon Ointment, 2 per cent.

Dimazon Powder.—5 per cent. Heilkraft Medical Co., Boston, Mass. (Jour. A. M. A., Jan. 22, 1916, p. 275).

Ichthalbin Tablets, 5 gr.—Each tablet contains ichthalbin 5 grains. Merck and Co., New York.

Triferrin Tablets, 5 gr.—Each tablet contains triferrin 5 grains. Merck and Co., New York.

Betanaphthol Benzoate-Roche.—A non-proprietary brand complying with the standards for betanaphthol benzoate. Hoffman-LaRoche Chemical Works, New York.

Betain Hydrochloride-Roche.—A non-proprietary brand complying with the standards for betain hydrochloride. Hoffman-LaRoche Chemical Works, New York. (Jour. A. M. A., Jan. 23, 1916, p. 275).

Ergotinine Citrate-Roche.—A non-proprietary brand complying with the standards for ergotinine citrate. Hoffman-LaRoche Chemical Works, New York.

Homatropine Hydrochloride-Roche.—A non-proprietary brand complying with the standards for homatropine hydro-chloride. Hoff-

man-LaRoche Chemical Works, New York.

Seiden Peptone-Roche (Silk Peptone).—A non-proprietary brand complying with the standards for silk peptone. Hoffman-LaRoche Chemical Works, New York.

Theobromine and Sodium Acetate-Roche.—A non-proprietary brand complying with the standards for theobromine sodium acetate. Hoffman-LaRoche Chemical Works, New York (Jour. A. M. A., Jan. 29, 1916, p. 355).

PROPAGANDA FOR REFORM.

Protonuclein and Protonuclein Beta.—Eight years ago, the Council on Pharmacy and Chemistry published a painstaking and exhaustive report on Protonuclein and other products of Reed and Carnrick. This report showed conclusively that the whole theory of nuclein therapy was a tissue of speculation, into whose texture are woven only a few slender threads of fact. Now the Council reaffirms its former action with regard to Protonuclein. The objections to Protonuclein apply with equal force to Protonuclein Beta, said to be Protonuclein mixed with equal amounts of nucleoplasm and protoplasm of the spleen. In view of the lack of evidence the claims made for Protonuclein Beta are unwarranted. The Council, therefore, reports that it is ineligible for New and Nonofficial Remedies (Jour. A. M. A., Jan. 1, 1916, p. 38 and 48).

The Composition of Liquid Petrolatum.—As naphthene hydrocarbons predominate in Russian crude petrolateums and paraffin hydrocarbons in many or most American crude pearoleum, it was assumed that the petrolatums derived from these sources differed from each other in like manner. While both the naphthenes and paraffins are chemically inert, some unexplained therapeutic superiority has been asserted to reside in Russian liquid petrolatum. Benjamin T. Brooks, of the Mellon Institute, explains that most so-called "mineral oils" used for therapeutic purposes contain no paraffin hydrocarbons whatever and that, regardless of the source of the crude petroleum, the fraction which constitutes the liquid petrolatum is composed essentially of naphthenes and polynaphthenes (Jour. A. M. A., Jan. 1, 1916, p. 38).

Stuart's Calcium Wafer Compound.—The A. M. A. Chemical Laboratory reports that Stu-

art's Calcium Wafers Compound, consists essentially of calcium sulphide and aloes or aloin. Like other so-called blood purifiers, it is essentially a cathartic (Jour. A. M. A., Jan. 1, 1916, p. 51).

Hydropsin.—According to the Ernest Bischoff Co., Inc., Hydropsin is the juice of digitalis, squill, European birch, juniper and knot weed, dialyzed and physiologically standardized. The Council on Pharmacy and Chemistry reports that the composition claimed for Hydropsin brands it as an irrational mixture in which potent drugs are combined with, and more or less covered up by, others that are obsolete and inefficient. The name, instead of indicating its composition, suggests diseases in which it may be thoughtlessly and indiscriminately used. The claim that the danger of toxic or cumulative action has been removed, if accepted by physicians, tends to uncritical use with possible disastrous results (Jour. A. M. A., Jan. 8, 1916, p. 135).

Digitalysatum. — Digitalysatum, according to the Ernst Bischoff Co., Inc., is the dialyzed juice of fresh digitalis physiologically standardized and containing 12 per cent alcohol. Sterisol-Digitalysatum appears to be the dialysate without alcohol diluted with equal parts of physiologic salt solution. The preparations are advertised with claims which imply superiority to all other digitalis preparations. The Council on Pharmacy and Chemistry holds that attempts to create the impression that Digitalysatum possesses all the virtues of digitalis without its chief disadvantage are to be condemned as likely to lead to incautious use of the preparation. The Council therefore declared Digitalysatum ineligible for New and Nonofficial Remedies (Jour. A. M. A., Jan. 8, 1916, p. 135).

So-Called Secretin Preparations.—At the request of the Council on Pharmacy and Chemistry Professor A. J. Carlson of the University of Chicago has studied the action of secretin when administered by mouth or directly into the intestine and also investigated the secretin content of certain alleged secretin preparations. Carlson and his co-workers, like all previous investigators, found that secretin, when given by mouth or introduced even in enormous doses directly into the intestine, is entirely inactive. Further, they were unable

to demonstrate the presence of secretin in samples of Secretogen and another supposed secretin preparation (Duodenin) bought on the open market, except that one bottle was found which contained a little secretin. Carlson and his co-workers conclude that there is as yet no reliable evidence that lack of secretin is a primary or important factor in any disease and that, should this be established, secretin therapy, to be effective, must be intravenous. The Council endorsed the work of Professor Carlson (*Jour. A. M. A.*, Jan. 15, 1916, p. 178 and 208).

Tiger-Bone Therapy and "Clinical Experience."—In China the administration of powdered tiger-bone is, or was, a favorite form of treatment of supposed cardiac weakness. Since many patients have recovered after taking tiger-bone and no one has proved that they might not have died had they failed to take it, "clinical experience" stands back of the treatment. Not satisfied with the assertion of the dealers regarding the genuineness of the drug the conscientious Chinese physicians subject the tiger-bone to a kind of physiologic standardization. He offers the bone to a dog! If it is an ox-bone—a frequent form of substitution—the dog will seize and eagerly gnaw it, whereas, according to the teachings of Chinese pharmacognosy, if it is a tiger-bone the dog will depart hurriedly with his tail between his legs. Much of our so-called clinical experience is not much better than that of the Chinese "clinical" evidence for tiger-bone therapy. Also, many physicians are wont to accept the statement of drug dealers without even making an attempt to check the claimed identity of the advertised remedy (*Jour. A. M. A.*, Jan. 15, 1916, p. 197).

Mixed Antityphoid and Antiparatyphoid Inoculation.—The use of any mixed vaccine is to be looked on askance. The simultaneous inoculation against typhoid, paratyphoid A and paratyphoid B needs further study in many directions. Reason and judgment at present would seem to approve the idea of using a mixed vaccine for the typhoid and paratyphoid infections. If a practical method of using this mixed vaccine can be devised, it seems to promise results (*Jour. A. M. A.*, Jan. 15, 1916, p. 193).

Fulton's Compounds.—A "Bulletin" sent out by the promoters of Fulton's Renal Com-

pound and Fulton's Diabetic Compound gives an account of the alleged good results of the treatment in the case of a Mr. J. J. Penne-packer. The columns of a local newspaper announce the amputation of this man's leg for diabetes (*Jour. A. M. A.*, Jan. 29, 1916, p. 373).

Strontium Bromide.—The official bromide contains about two-thirds as much bromide as is contained in potassium bromide and about three-fifths as much as that contained in sodium bromide. Hence it may be expected that the bromide action from strontium bromide will be much less than that of either potassium bromide or sodium bromide (*Jour. A. M. A.*, Jan. 29, 1916, p. 376).

Strontium Salicylate not Superior to Sodium Salicylate.—In a series of carefully controlled trials, carried out in the Lakeside Hospital, Cleveland, M. A. Blankenhorn shows that strontium salicylate possesses no advantages over sodium salicylate as regards either therapeutic efficiency or freedom from undesirable by-effects. The salicyl content of strontium salicylate is about four-fifths that of sodium salicylate. This smaller salicylate content may have contributed to the notion that strontium salicylate is less likely to cause salicylism. This notion may have also arisen from the fact that the more expensive preparations are likely to be given in smaller doses than the cheaper sodium salicylate. That the strontium salt of salicylic acid has no advantage over the sodium salt, has also been pointed out in the report of the Council on Pharmacy and Chemistry on Rheumalgine (*Jour. A. M. A.*, Jan. 29, 1916, p. 331 and 362).

Book Review

A TEXT-BOOK OF THE PRACTICE OF MEDICINE

Twelfth Edition Thoroughly Revised.

A Text-Book of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Twelfth Edition Thoroughly Revised. Octavo of 1336 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1915.

Cloth, \$5.50 net; Half Morocco, \$7.00 net.

The twelfth volume of Anders' Practice has been thoroughly revised, much new matter added and the entire work made to conform to present day ideas and modern practice.

The established reputation of this work makes it unnecessary for us to review it at length. The present volume, up to date as it is, will make many new friends for a book which now counts its friends by the thousands.

THE MEDICAL CLINICS OF CHICAGO

January 1916. Volume 1, Number 4.

Published Bi-Monthly. W. B. Saunders company, Philadelphia and London. \$8 per year.

After a careful examination of the fourth number of the first volume of the Medical Clinics of Chicago we feel that we must emphasize our statement, previously made, that this series of clinics is by far the most valuable contribution that has been made to the general practitioner in recent years.

The present number contains a wealth of material and deserves all the praise that can be bestowed upon it. These contributions from the clinics of the various Chicago hospitals as presented and with the especial emphasis on diagnosis cannot fail to be of immense value to those who carefully read them.

In the present number, while all the cases are interesting, we are particularly impressed with the clinic of Doctor Isaac Abt on Infantile La Grippe. While the epidemic of Grippe is sweeping the country too many of the "infantile Grippe" cases are overlooked and it is timely to have this excellent clinic report before us.

The publishers promise for the March, 1916, number and thereafter the X-Ray clinics of Doctor James T. Case, with special reference to the X-Ray in the diagnosis of internal medicine.

A MANUAL OF PATHOLOGY

Third Revised Edition

A Manual of Pathology. By Guthrie McConnell, M. D., formerly Professor of Pathology and Bacteriology, Temple University, Medical Dept., Philadelphia. Third Revised Edition. 12mo. volume of 585 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth \$2.50 net.

Doctor McConnell's Manual of Pathology has reached a third edition. This alone demonstrates that it has found a place in medical literature and has gone a long way toward supplying the need of a manual which will briefly and clearly emphasize the more important points of the subject of which it treats.

This edition is considerably larger than the former ones, much new material having been added. The chapter on the Blood has been entirely rewritten.

We note that the author still classes bacteria as belonging to the vegetable kingdom.

Many of the illustrations appearing in the earlier editions have given place to newer cuts and many new illustrations have been added.

The book is by far the best Manual on Pathology that it has been our privilege to read.

DISEASES OF THE NOSE AND THROAT.

Diseases of the Nose and Throat. By Algernon Coolidge, M. D., Professor of Laryngology in the Harvard Medical School. 12mo of 360 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$1.50 net.

Doctor Coolidge has prepared an excellent manual on diseases of the nose and throat; one which we believe will be popular on account of its arrangement and the attention given to the important details of examination, diagnosis and treatment of the upper respiratory tract.

The author has avoided the discussion of unproved treatments and theories and has stressed established facts.

The various diseases are taken up under their proper headings and discussed in greater or less detail as they may require.

A chapter on therapeutics is added. The illustrations are clear and well-chosen with a particularly pleasing lack of pages of cuts of instruments.

W. B. Saunders Company, publishers of Philadelphia and London, have just issued their 1916 eighty-four-page illustrated catalog. As great care has evidently been taken in its production as in the manufacture of their books. It is a descriptive catalog in the truest sense, telling you just what you will

find in their books and showing you by specimen cuts, the type of illustrations used. It is really an index to modern medical literature, describing some 300 titles, including forty-five new books and new editions not in former issues.

A postal sent to W. B. Saunders Company, Philadelphia, will bring you a copy—and you should have one.

PROGRESSIVE MEDICINE

A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appel-man, M. D. Volume IV. December, 1915. Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas, and Peritoneum. Diseases of the Kidneys, Genito-Urinary Diseases, Surgery of the Extremities, Shock, Anaesthesia, Infections, Fractures and Dislocations, and Tumors. Practical Therapeutic Referendum. Lea and Febiger, Philadelphia. \$ Per Year.

Dr. Edward H. Goodman has devoted considerable space upon the opening chapter, that of the Digestive tract, and the allied organs. These are reviewed in sequence, beginning with oral sepsis. A great quantity of material has been given the profession in this subdivision, and we here have a valuable and comprehensive review of all this material. Special stress has been laid upon gastric cancer, and many laboratory tests reviewed, and a review of the laboratory data in this condition, so far as their value is concerned in its detection. Another topic receiving special mention is that of hour-glass stomach, and some X-ray illustrations illuminate the text. Arriving at the division of the intestines, we have another liberal review of the literature that has come out in the past year upon this subject. Under the Diseases of the Kidneys, Dr. J. Harold Austin has given us an unusually valuable chapter. It is remarkable to note the amount of work that has been done in this subject, and his review does this work justice, and is both entertaining and instructive. He enters all the ramifications of the subject, and gives us all that has been good

and worth while in this field. Under Genito-Urinary Diseases, Dr. Charles W. Bonney gives us the review of all literature arising from the Kidneys, Bladder, Prostate, Penis and Urethra, Testicles, Cord and Seminal Vesicles. If any one of these topics receive any special attention, it is that of the prostate. Undoubtedly the chapter upon Surgery of the extremities, etc., is the best. Dr. Bloodgood opens with a review of the material presented upon shock. A short review of anaesthesia follows. A twelve page report of the First-Aid Conference which met in Washington, D. C., August 23rd and 24th, 1915. Under wounds there is much new material gathered from the Journals of this country, and those of Europe at war. It is a compilation of such literature and data as has reached us up to the time that this article went to press. There are many illustrations showing new and unusual departures from those seen heretofore. The article is extensive and embraces the softer as well as the denser tissues. Dr. Landis gives us an excellent chapter upon Therapeutic Referendum. There seems to be less of new remedies found in this chapter, but a consideration of the results of recent investigations upon the old and standard ones. This brings therapeutics down to date, and is a fitting final chapter to this excellent work.

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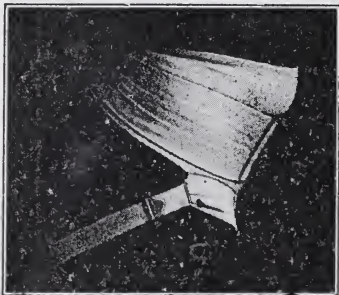
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The New Mexico Medical Journal

Volume XV

MARCH, 1916

No. 9

E . D . I . T . O . R . I . A . L

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PUBLIC HEALTH SERVICE HOSPITALS CURB TRACHOMA.

The establishing of small trachoma hospitals in localities where this contagious disease of the eyes is prevalent presents the best solution of the trachoma problem, according to the statement contained in the annual report of the surgeon general of the United States public health service. The service now has five trachoma hospitals in the three states of Kentucky, Virginia and West Virginia, and so great has been the number of applicants for treatment that a waiting list has been established. In the past fiscal year 12,000 cases of trachoma have been treated, the larger proportion of which were cured, while those in which a cure was not effected have

been greatly improved and rendered harmless to their associates. The great majority of these trachoma patients were people who lived in remote sections far removed from medical assistance, and who, but for the hospital care and treatment provided would have remained victims of the disease practically the remainder of their lives.

"When it is considered," the report of the service states, "that thousands of persons suffering with trachoma, a dangerous contagious disease, would otherwise remain untreated, it is realized how far-reaching results have been obtained through these trachoma hospitals and the other public health work done in this connection. It would be impossible to estimate with any degree of accuracy the number of people who have been saved from contracting this communicable disease by thus removing these thousands of foci of infection."

In addition to treating persons with the disease the hospitals have been used for educational work. Doctors and nurses have visited the homes of the patients and have explained how to prevent the develop-

ment and recurrence of the disease. One thousand three hundred and eight such visits were made during the year in Kentucky alone. "It has taken some time," the report continues, "to educate the people afflicted with this disease to the importance of cleanliness and the use of simple hygienic measures in their daily life." That results have been obtained is evidenced by the noticeably better observance of hygienic precautions by those among whom the work has been done.

In addition to the hospital work, surveys were made in 16 counties in Kentucky, especially among school children. Eighteen thousand and sixteen people were examined, 7 per cent being found to have trachoma. Similar inspections in certain localities of Arizona, Alabama, and Florida resulted in finding the disease present in from three to six children out of every hundred. Periodic examination of school children for the disease and the exclusion of the afflicted from the public schools, are two of the recommendations the public health service lays emphasis upon.

One of the special features of the trachoma work was the giving of lectures and clinics before medical societies in various counties where trachoma hospitals could not be established. Patients were operated upon in the presence of physicians and the most modern methods of treatment demonstrated. Throughout, the purpose has been to stimulate local interest in taking up the campaign to eradicate trachoma.

THE AMERICAN MEDICAL GOLFING ASSOCIATION.

In accordance with preliminary announcement made in the A. M. A. Journal previous to the last A. M. A. convention, the American Medical Golfing Association held its first tournament in San Francisco June 21, 1915. Arrangements were then made for the organization and that is now complete with the following directors:

President—Wendell C. Phillips, New York.

Vice President—James Eaves, San Francisco.

Secretary-Treasurer—Will Walter, Chicago.

Plans are now being made for the second tournament to be held in Detroit at the forthcoming A. M. A. convention in June.

The directors have decided to list as charter members all fellows who shall have enrolled by April 1, 1916.

All fellows of the A. M. A. who play the game are eligible and may obtain the desired information from the secretary-treasurer, Dr. Will Walter, 122 S. Michigan Boulevard, Chicago.

Members of the British Medical Association have a similar organization for play at their annual meeting, and it is thought that this will add materially to the social interest of the A. M. A. as it has to the B. M. A. convention.

IT PAYS THE MANUFACTURER TO MAINTAIN ETHICAL STANDARDS.

The notice of the removal of the Dextrin-Maltose manufacturing plant from Jersey City to Evansville, Ind., published in one of our advertising pages, deserves more than passing attention. It furnishes evidence of the natural growth of a manufacturing enterprise which is now vacating its old factory with 18,000 square feet of floor space for a new location in the Central West and in a new plant with 300,000 square feet of floor space—sixteen times larger than the old one.

This removal from a comparatively small to a very large housing also affords striking proof that success awaits the manufacturer who produces something the physician really wants, and markets his products in accordance with the standards set up by doctors for sale of products they use. The first commandment for the direction of the manufac-

turer under these standards is: "Thou shalt not offer to both physician and public, by advertising or other wise, anything which requires medical skill to properly use."

This commandment has been ignored by some manufacturers of infant foods, who have persistently educated the public with pseudopediatries, thereby tending to increase infant mortality and hampering the physician in the practice of scientific, or even rational infant feeding.

But ultimate reform in the manufacture and sale of infant foods was as inevitable as the reform that has taken place in the sale of pharmaceutical products. The day of mystery and tradition in infant feeding is passing rapidly.

The recent simplification of bottle feeding, rendering it possible, without impractical complication, for the family physician to successfully adapt the diet to the individual baby, has brought about a strong conviction that the direction of infant feeding is distinctly the proper work of the physician.

This conviction has in turn created a demand for forms of carbohydrate foods which can be freshly prepared in exact proportions to meet clinical indications; and for their sale without directions for use, so that the physician can personally control the administration of the food.

The firm, which announces herewith its removal from the east to larger opportunities in the west, early recognized the requirement by the medical profession for a product used in infant feeding, made and sold exclusively for physicians, with no appeal, nor information to the public.

This firm deserves no special commendation for the course it has pursued, it being its duty to follow it. Reference to the sales of Dextrin-Maltose is made simply to show that it is remunerative for manufacturers to treat the medical profession fairly.

COUNTY SOCIETY NOTES.

The first meeting of the Las Vegas Medical Society for the year 1916 was held on January 28, at the home of Doctor E. B. Shaw. Doctors Crail, Shaw, Smith, Tipton, Kaser, Losey and Howe were present. Doctor Crail, the newly elected president, took the chair.

Doctor Shaw reported a very interesting case of Cancrum Oris following measles and

running a very rapid course with much prostration and toxemia. This was the second case to occur in the practice of the doctor over a period of thirty years.

Doctor Howe reported a case of Spinal Meningitis following pneumonia, the patient making a perfect recovery.

Doctor Smith presented a paper on Empyema, showing the importance of early diagnosis, and the advantage of early surgical procedure thereby lessening the probability of the necessity of more serious operations, which are bound to follow in the neglected cases attended by adhesions and other complications.

Following the scientific program those present were highly entertained at the festal board.

February 16, 1916, the Las Vegas Medical Society held its regular monthly meeting in the rooms of the Commercial Club with the president, Doctor F. H. Crail presiding. Doctors Shaw, Smith, Chalmers, Losey, Kaser, Mills, Howe of East Las Vegas, and Martin of Anton Chico were present.

A paper was read by Doctor Chalmers on Head Injuries. The paper, together with the discussion which followed, brought out many valuable points to the general practitioner.

Doctor Mills reported a case of Ichthyosis and one of Pellagra.

Doctor Chalmers reported a case of Tumor of the Rectum with signs of bowel obstruction.

Doctor Howe reported a case of greatly enlarged liver associated with jaundice but no other constitutional symptoms.

Doctor Crail reported a case of smallpox during pregnancy followed by labor at term, the child showing marked evidence of intra-uterine variola. Five months later the mother was operated upon for ruptured ectopic pregnancy.

On motion the society adopted a resolution favoring the making possible for the Surgeon General to expand the Medical Department of the United States Army in case of war.

The following county societies have reported the 1916 officers:

Las Vegas Medical Society:

President—F. H. Crail.

Vice President—E. B. Shaw.

Sec. and Treas.—Wm. Howe.

Censors—C. S. Losey, W. R. Tipton, W. E. Kaser.

Delegate to State Society (for 2 years) William Howe; C. S. Losey.

McKinley County:

President—J. W. Stofer, Heaton.

Vice President—A. H. DeLong, Gallup.

Secretary—Wm. Hutchinson, Gibson.

Treasurer—J. M. Boyle, Gallup.

Delegate—A. H. Wilson, Gallup.

Censors—J. W. Stofer, Heaton; W. B. Cantrell, Gallup; C. A. Pratt, Gallup.

Chavez County:

President—H. V. Fall, Roswell.

Vice President—W. C. Buchly, Roswell.

Secretary and Treasurer—C. M. Yater, Roswell.

Delegates to State Society—C. F. Beeson, Roswell; H. A. Ingalls, Roswell.

Censors—W. T. Joyner, Roswell; W. W. Phillips, Roswell; R. L. Bradley, Roswell.

Quay County:

Secretary—O. E. Brown, Tucumcari.
(No report as to other officers).

Santa Fe County:

President—James A. Rolls, Santa Fe.

Vice President—B. E. Hedding, Santa Fe.

Secretary and Treasurer—E. L. Ward, Santa Fe.

(No report as to other officers).

Doña Ana County:

President—Geo. F. Carter, Mesilla Park.

Vice President—Chas. T. Sands, Las Cruces.

Sec.-Treasurer—Troy C. Sexton, Las Cruces.

Delegate—

Censor—Dr. J. N. Minetree, Las Cruces.

Curry County:

Secretary—Dr. J. R. Haney, Clovis.

(No report as to other officers).

Colfax County:

President—Dr. W. A. Connett, Raton.

Vice President—Dr. O. J. Whitcomb, Raton.

Secretary-Treas.—Dr. T. B. Lyon, Raton.

Delegate—Dr. T. B. Lyon, Raton.

Luna County:

President—R. C. Hoffman, Deming.

Vice President—F. D. Vickers, Deming.

Secretary—E. A. Montenyohl, Deming.

Treasurer—P. M. Steed, Deming.

Delegate—S. D. Swope, Deming.

Censors—S. D. Swope, J. G. Moir, R. C. Hoffman, all of Deming.

Doctor E. O. Stuckey of Albuquerque died February 3rd as a result of morphine taken with suicidal intent. Doctor Stuckey was a sufferer from tuberculosis and had declared that he would not linger after he became too ill to practice. In a statement left to the public he says: "I have come to the end of the road where every one finally lands. It is either be brave enough to face the inevitable NOW or linger on in my wretchedness." Dr. Stuckey was not a member of the Bernalillo County Medical Society.

Dr. J. J. Bergmans has moved from Mora to Taos.

Santa Fe is to have a district nurse who is to be supported by the city council and the Women's Board of Trade. Her duty will be to nurse those cases needing a nurse and who could not otherwise afford one.

Three cases of a mild form of scarlet fever have been reported in Santa Fe. These with a number of cases of measles appearing in the late fall are the only contagious diseases appearing in the capital city recently.

Items of Interest from Roswell.

On the night of Feb. 17th, the Chaves County Medical Society held open house and by previous arrangements had Mr. Thomas May, deputy U. S. internal revenue collector, address the assembly on "The Workings of the Harrison Narcotic Law." All the dentists, druggists and veterinary surgeons of the county were invited; many taking advantage of the occasion to get into the minutia of the law.

After the lecture a sumptuous luncheon and smoker was immensely enjoyed by those present at the expense of the society.

On Sunday, February 27, Dr. E. M. Fisher,

with his family, motored to the Dayton oil fields, returning in the afternoon.

Dr. T. E. Presley has been called to Texas on important business.

Dr. Finis L. Anderson, recently of Missouri, has located in Roswell and will engage in the practice of his specialty—diseases of the eye, ear, nose and throat.

The Chaves County Medical Society is doing some good work this year, as it has for the past several years, studying the post graduate course of study as gotten out by the A. M. A.

The society meets weekly, every Thursday night, in the district court room No. 2 and would be glad to have any visiting physician that may be in the vicinity visit any of our meetings.

If you ever see Dr. W. T. Joyner, ask him what he knows about Alopecia Areata, which was his subject for lecture before the society on the night of February 3.

The Pecos Valley Medical Association, composed of the counties of Curry, Roosevelt, Lincoln, Chaves and Eddy, will meet this year (time yet to be set definitely, possibly in April or May) in Clovis.

At the meeting of the society on March 9th, a committee was appointed to get a form to set forth the attitude of the society in regard to the proposed "tubercular sanitarium" for Roswell to be reported to the society at next meeting.

The progressive element of Roswell, with the County Medical society, is taking steps to "capitalize our glorious climate and New Mexico Sunshine. Why not? We have the most desirable altitude, purest air, brightest sunshine and more of it, purest water, best people and city in the state of New Mexico. God gave us free sunshine and air and seemed to dote on the quality of each, then why not put it to work?

If the business men of Roswell had taken this step several years ago instead of warning tubercular people away from Roswell we would long since have been declaring dividends on the investment.

The following was clipped from a recent issue of one of our local papers:

"The surgeons attending the confinement of ——— following his operation yester-

day for appendicitis report his condition today as being very satisfactory."

Did not state sex of child.

Original Articles

PERINEAL REPAIR, WITH REPORT OF A CASE.

B. L. SULZBACHER, M. D.
Kansas City, Mo.

Read before the section on Surgery of the 34th Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 7-9, 1915.

Medical and surgical literature of today devotes much time and space to a multitude of references and a vast bibliography. While in no manner minimizing the merit of thorough investigation, it seems to the writer that reference might be conveniently confined to such authorities only whose recent investigations shed new light on the question under discussion.

Priority in operative procedure is only of interest to those who lay claim to originality of certain methods. The main issue for consideration should be, whether such method or technique is of value to the patient, and whether its adoption will be followed by good and satisfactory results.

With the foregoing in mind, I have to present the report of a case, the character of which is of such common occurrence that the clinical picture is familiar to us all. In dealing with the treatment, operative, post-operative, and medical, I

beg to carry this case to its final conclusion as typical.

Mrs. X comes to us and repeats the "Oft told tale"—that since the birth of her child she "has not been well;" that she has pains in her abdomen, headache, backache, bowels move only with the aid of cathartics, appetite poor, and indigestion severe; that her bladder hurts her, that urination is frequent, and that the urine frequently escapes when she sneezes, coughs or laughs; that her menstruation is irregular, and for the greater part occurs every three weeks; lasts from six to eight days, and is accompanied by pain. These pains have no distinctive type. They vary in intensity and may occur either before, during or after menstruation. The vaginal discharge between the periods is profuse, irritating and evil smelling.

Further questioning brings out the facts that she is twenty-seven years old, has been married five years. Her child is three years old. Before her pregnancy, menstruation was normal to all intents and purposes; only during her first day did she complain of a heavy dragging feeling in her pelvis. The delivery of her babe was normal. She nursed it and was up and about on her tenth day, but since that time, to use her expression, she "has not been well."

The general physical findings were negative. The patient is highly neurotic, irritable, trembles and cries. To a certain extent anaemia is present.

Pelvic examination revealed the following:

Perineum torn and greatly relaxed, both anterior and posterior vaginal walls protrude. The posterior presents a definite pouch. The cervix is torn across and easily would admit the examining finger. Uterus, as a whole, is large and heavy. It occupies a position which we would designate as retroversio-flexio. Cervix points toward the back. Uterus is movable, but painful to movement. Right ovary sensitive, left ovary large and exquisitely tender. There exudes from the cervix a yellowish white, thick tenacious mucous. The bacterial stains of this secretion are a general mixed infection, no gonococci present.

DIAGNOSIS.

Laceration of the perineum and cervix. Endometritis rectocele. Retroversio-flexio uteri. Ophoritis dextra et sinistra.

Our counsel was to have the damaged external parts repaired and such remedial steps taken with the internal genitalia as the exigencies of the case demand.

The patient entered the hospital forty-eight hours prior to the time set for operation, and after a cleansing bath, was put to bed; one dose of castor oil, half ounce, was given, and liquid diet ordered; salol in doses of ten grains given every four hours, providing that the urine showed no renal abnormality; and cleansing douches of hypo-tonic salt solutions. In a series covering some two hundred cases, this preliminary routine has served well, and the result has been that when the abdomen was invaded we were not met with a mass of bulging and gas-distended bowel.

Locally, the parts are cleansed and prepared by any of the accepted methods. Our experience warrants us to choose as an anaesthetic gas and ether. We have yet to see any untoward effect when properly administered. The advantages of a rapid anaesthesia in the early stages are obvious.

The cervix is exposed as in Fig. 1, and uterine canal dilated, if need be, and then wiped with gauze. This serves admirably in lieu of curettage, which procedure is so often useless and fraught with many dangers.

The edges of the laceration are denuded to the muscular layer, the cicatricial plugs in the angles carefully removed, and the parts brought in apposition, care being taken to preserve the integrity of the mucosa of the cervical canal. The method of Schroeder does this admirably. The selection of suture material is one of personal preference. We still adhere to silk-worm gut. Sutures are left long and remain in fourteen days. Their removal is quite painless and simple.

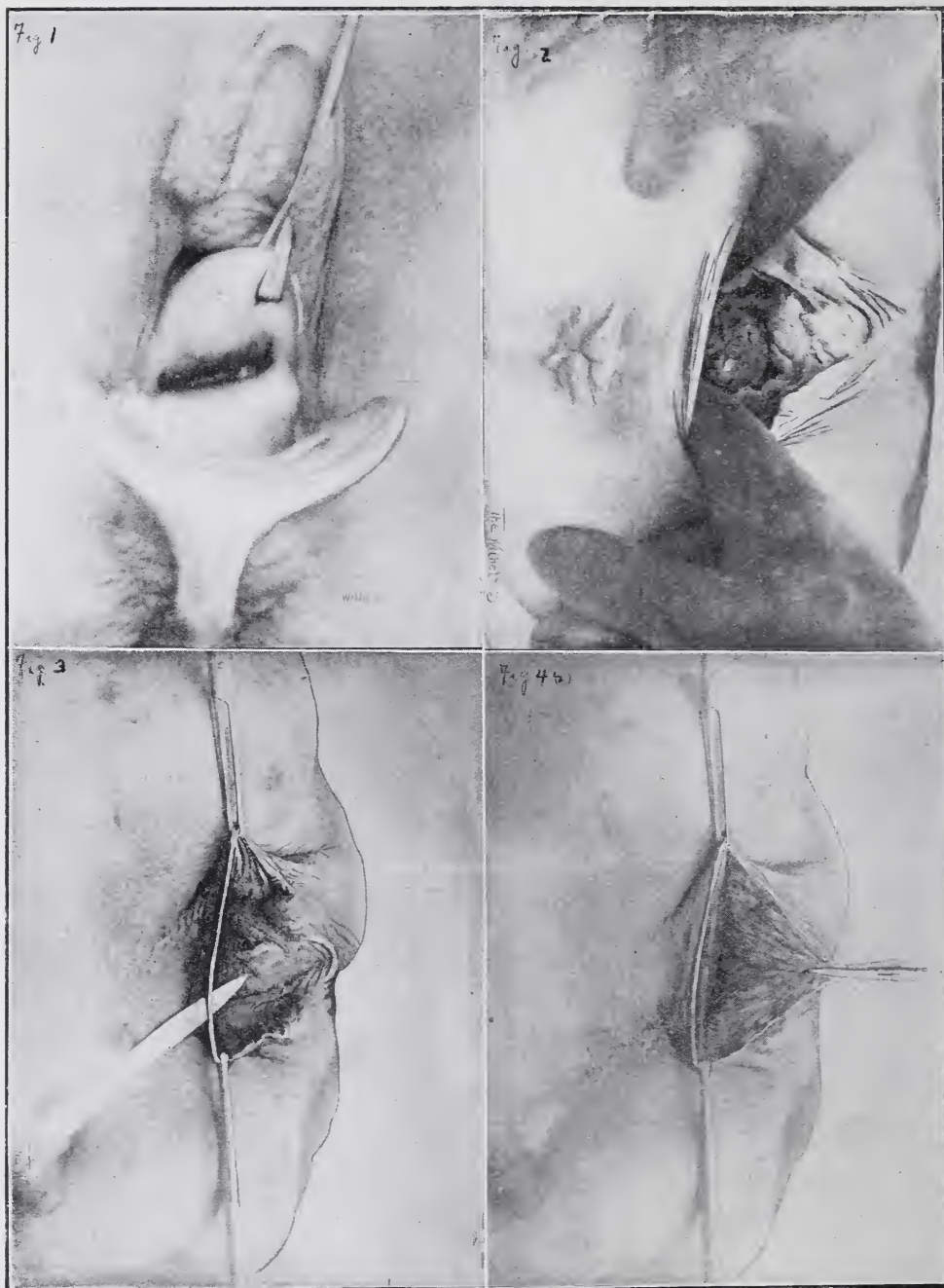
Fig. 2 shows the lacerated and relaxed condition of the introitus. The rectocele unfortunately is not reproduced. It is one the manner of this repair that we lay particular stress. The operation is new only in so far that it combines the teaching of the older surgeon with the more rational, anatomically correct, methods of today. We all recall the efforts of Tait, Emmet Von Langenbeck and a host of others. They gave us the idea of flap splitting. Later Hager and Fritsch modified

the area of the surface to be denuded. These able men denuded and sewed the skin surfaces together. Their cosmetic results were beautiful, but fell short of the purpose they were to accomplish. Some went so far as to include in a wide sweeping suture with an immense curved Hagadorn needle, all tissues that lay in the denuded area. Later Martin inaugurated the idea of sewing in layers. While this was correct in principle, his deeper dissections were insufficient.

During the last few years, an accurate anatomic dissection is made, and the retracted structures brought together into normal apposition. Possibly no one is more responsible for this than Howard Hill, whose operation is well known. Musculo-muscular, and fascio-facial coaptation is the key note to success. The perineal body must be rebuilt from within outward.

This short preliminary will serve to explain the object of the steps in the further description of the repair. A close inspection will show the point of union between normal and cicatricial tissue. These points are grasped with mouse-tooth forceps and tension is made. The line between the forceps is perforated with a sharp knife. Fig. 3.

The resulting incision is more definite than one obtained in any other manner. The upper edge is grasped with a pair of forceps and the dissection begun. The flap should consist only of the vaginal wall. All other structures should be left. Finding the line of cleavage, the dissection is rapidly accom-



plished with a piece of gauze over the finger and a downward stroke. Any tough bands are divided with scissors. The dissection must be carried to a point in the vagina where the normal vaginal tissue meets the scar tissue, as all scar tissue must be removed.

The dissected flap comes to a point well within the vagina. This is shown in Fig. 4 with the sides retracted, and the denuded area gives the impression of two triangles, one above the other, their apices joining high in the vagina.

The retracted muscles must now be sought and brought into view. By inserting a pair of closed curved scissors into the sulcus on either side midway between the apex and the base of the triangle, then opening them as is shown in Fig. 5, the muscular layers are reached. We then proceed to catch the muscle with a short curved needle and bring it into the center of the field. The suture showing muscles coapted appears in Fig. 6. This suture is kept merely as a retractor. The identity of these muscular structures seems to be the object of some discussion. The levator ani proper sends its muscular fibres in a transverse direction converging towards the center. The muscles caught in the illustration send their muscular fibres from above downward. It is properly speaking the musculus pubocoxigeus. This arises from the inner surface of the pubes and blends later with the levator ani of each side. This muscle is the one separated in incomplete tears. The levatores ani are involved where the

tear is through the sphincter ani muscle.

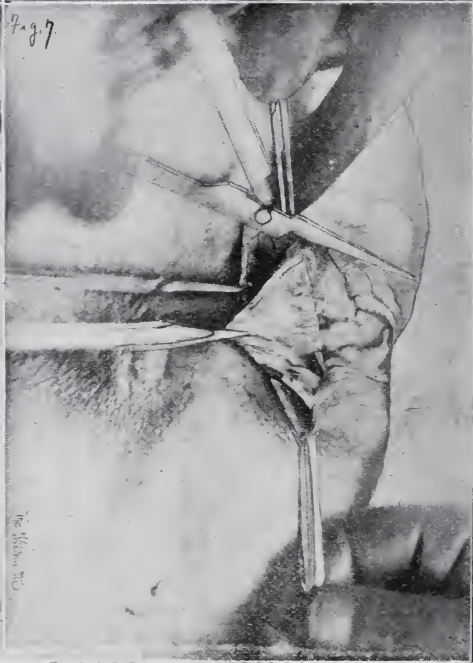
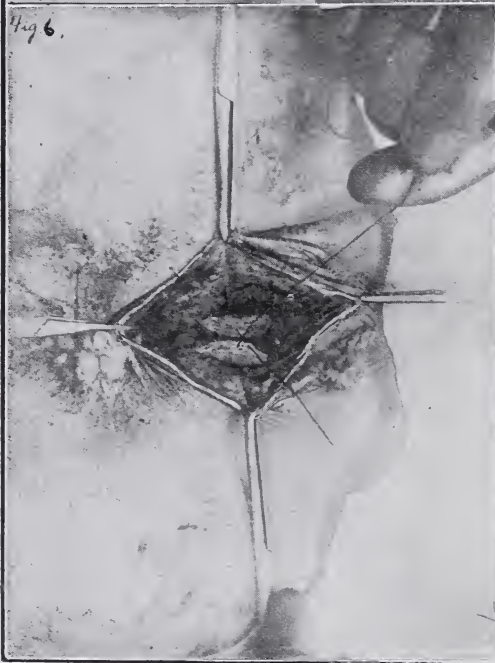
While the muscles are held together in this manner, we outline on the flap the point where the flap should touch the muscles in their normal apposition. A "V" shaped piece is then excised from the flap as shown in Fig. 7. That portion of the remaining flap is sewed with No. 1 continuous cat gut suture to a point corresponding to the external angle of incision.


In Fig. 8 is shown the result of the first few stitches. The flap is then held aloft and the muscles sewed together. Fig. 9. Continuous sutures are used.

In Fig. 10 the muscular layer is shown united and the fascia of the perineum in relief. In bringing together this layer of fascia the reconstruction of the perineal trigone is completed. The skin is then coapted either by continuous or interrupted cat-gut suture; or by subcuticular suture. In this instance a continuous No. 1 cat-gut was used, as is shown in Fig. 11.

We have no claim for originality in any of the steps of the operation save in the application of the principle of the old flap-splitting methods and the muscular coaptation.

Much argument has been directed against the removal of the flap or even a portion thereof, the reason being given that the resulting intravaginal scar would prove troublesome and painful. In our rather wide experience this has not occurred. Our object in fact is to remove a big area of scar tissue and to replace it with a small one. When



the redundant vaginal tissue is left in situ the end result is a gaping vaginal orifice  Normally, the vaginal introitus presents a picture like a wide capital "H")—(

The anterior and posterior walls must lie in juxtaposition. This result is definitely obtained when the steps of the foregoing operation are properly followed.

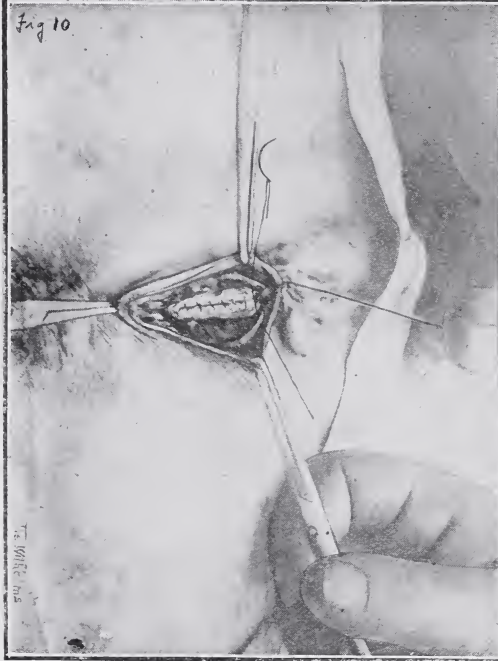
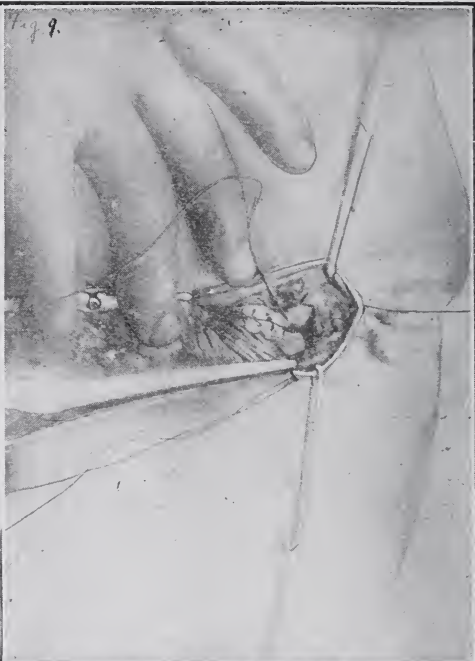
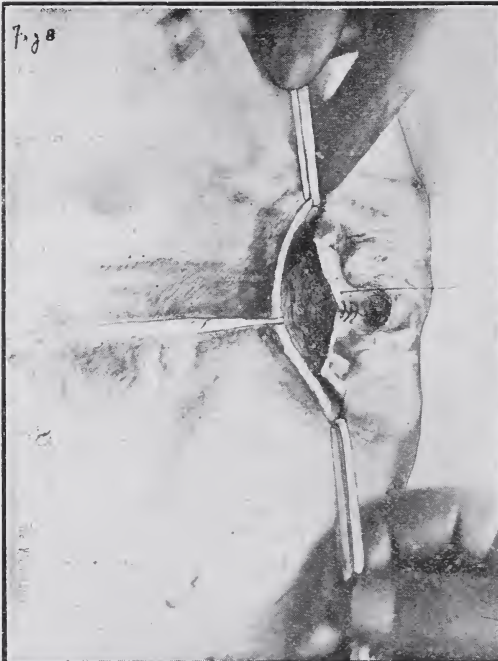
The abdomen was then opened and owing to previous preparation the bowels were found absolutely flat. A light rat toothed volsellum grasped the fundus of the uterus and brought it well toward the line of incision, which was through the right abdominal rectus muscle. The right ovary was picked up and some small cysts found. These were punctured with a needle and the ovary allowed to drop back. The left ovary was adherent to the posterior leaflet of the broad ligament. It was carefully lifted out and its surface showed relatively large cysts and one decided haematoma. This was the point of adhesion. The ovary was then split along its greater axis and all the cysts evacuated or dissected, the cortex of the ovary trimmed and the remaining portion closed with a very fine running suture of cat gut. In placing this suture, our method is to use a regular post-mortem stitch, that is, starting at one end and sewing from the inner to the outer surface. When the distal point is reached the suture is reversed and we come back along the same line and tie to the original end of the suture. This procedure leaves no raw surfaces.

Coffey-fixation was then carried out with just sufficient tension to hold the uterus steady. The appendix was inspected and being entirely normal was not molested.

Finally the abdomen was closed with continuous sutures in layers, and the skin approximated with Michel clamps. At no time during the abdominal operation were any packings placed within the abdominal cavity. In fact, as soon as the internal organs were exposed a moist towel was placed across the upper portion of the incision. Since we have not placed either packs within the abdomen or retractors on the abdominal walls, it has been noted that the post-operative period is much relieved, that gas pains and distention have been most universally absent. We believe that the gauze packs within the abdomen during operations should not be used.

The patient made an unretarded surgical recovery. Her strength, however, did not return quite as fast as would have desired.

It has been our experience to treat many patients after they had been operated by most excellent and competent surgeons, where the surgical recovery was complete, where the repairs were perfect, and still the patient did not feel well. The neurotic element must be taken into account, and we have recommended, and our results show its great value, the mild hydro-therapeutic treatment. The hot and cold sprays up and down the spine, general massage, and proper dietetics are of greatest value. The regulation of



diet to overcome the torpid bowel has given most pleasing results. In the case reported an inspection was made of the transverse colon and of the sigmoid. They seemed to be normal. A question which is demanding much consideration at the present time is the treatment of the internal ptoses. We have encountered this condition and often made plication where our judgment determined, but are not prepared at the present writing to give an opinion worthy of consideration.

This patient, Mrs. X, was operated on about three months ago. Her entire return to good health has been satisfactory. All her aches and pains have disappeared.

The illustrations in this article are reproductions from photographs made at the time of operation.

Aygye Building.

DISCUSSION

DR. WM. HOWE, East Las Vegas. We have listened to this paper with a great deal of interest, as it is one branch of surgery which should have more attention than it has which should have more attention than it has for the past twenty years. There are too many of the general surgeons who are too eager to enter the abdominal cavity and give too little attention to the perineum. That is demonstrated everywhere we go. As the late Joseph Price has frequently said—some of us who are here have heard him utter these things—"Gynecology today is recognized as a lost art." The general surgeon is treating it as a branch of his work, so that the surgeon who poses as a gynecologist looks inferior to himself. Deaver, who is doing an immense amount of work, is frequently speaking lightly of the gynecologist and yet from 50 to 75 per cent of all the work he is doing is within the gynecological field. One of the things

that illustrates this, although it may seem a little overdrawn, but it is a fair demonstration, is finding a case with obstruction, on operating finding the woman had had a ventral suspension, the suspension dragging down in later years to pediculate the peritoneum to the extent of better than three inches, the gut being tangled in this pedicle. The woman had had ventral suspension, but the perineum, which had a complete laceration, had been disregarded.

In regard to the technique of the principal operation, the Doctor has brought out some very valuable points, and the technique from the photograph is clearly demonstrated. Still, when we come to consider, for instance, that the vast majority of the gynecologists of the city with which I am more familiar than with any other place are still adhering to the old Emmet and Haggard procedures—they have tried them all, the flap splitting by the different procedures that have come up, etc.—and still such men as the late Joseph Price, W. E. Ashton, of Philadelphia, Kelly, Musser and Ashby of Baltimore, all of them fall back almost entirely on the Emmet procedure. There is no one except Montgomery of the Jefferson that I know of among the teaching body of gynecology in the eastern states that does the flap splitting operation.

DR. O. S. FOWLER, Denver, Colorado.—

In reference to the operation Dr. Sulzbacher has described, I learned it from Dr. Freeman several years ago, when I was an assistant. I do not know how the idea came to him. We have found the operation very satisfactory. In fact, I think it is as satisfactory in results as any of the older and more difficult operations. If anything wracked our heads when we were students, it was getting the sutures straight in that Emmet operation; it took about six pages in Dudley's gynecology to cover it and about six months to get an idea of it. The matter of the continued suture after the fascial planes are uncovered is extremely satisfactory. We have ordinarily used a No. 2 chromicized catgut or a No. 1. To get the right result is very simple and I think it is the choice of all the perineal operations that have been proposed.

The perineal operations are rather like therapeutics of gonorrhea. There have been about 700 things proposed and they are all

about equally inefficacious. A perineal repair is of no value unless the uterus is corrected in its position or is given perineal support by the perineal route. In the older women, beyond the child-bearing age, I think it is often necessary and advisable to bring the uterus to the abdominal wall and fasten it to the fascia of the recti muscles. I have done that in several cases and have had very excellent results where they had been operated over three times previously without being able to keep the uterus from prolapsing again. That, of course, must be done beyond the child-bearing age and the tubes must be obliterated.

As to the appendix, I differ from Dr. Sulzbacher on that point. I think that when we are in the abdomen it should always come out, because we may have to go in a year or two later and remove the appendix. Now that does not refer to our discussion of a while ago when we were making fun of the idea of taking out the appendix because we were in the belly. This is a different thing entirely. You have done some trauma in the pelvis and adhesions may or may not follow. If they do, the appendix is very apt to get mixed up in them and become diseased.

DR. E. PAYNE PALMER, Phoenix, Ariz.: In connection with this paper I am going to mention a subject which is sadly neglected. The woman may have a tear of the perineum and may be told that there is no tear. That is either because the physician has failed to make the proper examination, the obstetrician has failed to make the proper examination, has only superficially examined the perineum, or it is because he does not wish to admit that the tear has taken place during delivery under his supervision, and repair of the perineum at the time of birth is rarely satisfactory. You rarely get a complete and a primary union of the parts. In the majority of cases this is due to faulty technique or to the faulty after-care which the patient receives, and I believe that the large majority will fall in the latter class. I see a fair number of these cases which come to my town from various sections of the country. The majority who fail to get a repair when the repair is done primarily, are those where the repair was done at the home of the patient and the patient has had the so-called prac-

tical nurse in attendance. If the obstetrician is going to sit idly by and allow the so-called practical nurse to take care of his repaired perineums, he is going to have a very, very large per cent of failures and the obstetrical profession. The profession must awaken to this important subject. It is something you rarely see written of in the books on obstetrics or on surgery.

While I have the floor, I would like to mention in connection with the removal of the appendix, the operation that has been brought up twice recently. I operated upon a patient for a pyosalpinx and told the husband that there might be other work to be done when the abdomen was opened, we could not tell what was within the abdomen. He said, no, he wanted nothing but the tubes removed. Both tubes were removed as they were diseased, contained pus. Three weeks later, one week after the patient went home, she had an acute attack of appendicitis, and because of the recent operation they would not consent to the appendix being removed in the early stage. One week later, it was necessary to go back and open the abscess and drain, and because of the appendix being so extensively buried in adhesions it was impossible to remove it. Now how much easier it would have been for that patient to have had that appendix removed at the time. It was evidently a diseased appendix, because we know that about 5 per cent of all appendices in individuals who have reached the age of 40 are diseased, and the removal is only a matter of a few minutes. Now, this patient, after going through this attack of appendicitis, had to go back to the hospital and then later on, because of dense adhesions, is going to have to go back for a third time. The economic point here is an important one. If my abdomen is ever opened, I want them to take out the appendix first and then look around.

DR. PULLEY, Watrous: There is one point in connection with this heading that I would like to bring out and that is in regard to the pampiniform plexus in the female. I think if you will look up the literature on this subject, you will find very little. Now there are many operations done on the ovary, on the cervix and on the uterus, the appendix also, for different conditions, where you will

find afterward your patient coming back to you, probably within three or four weeks after she has gone out of the hospital, with the same old symptoms that she had before she came into the hospital—that is, dragging down pains, backaches, different symptoms—and you will wonder what the cause is. You will find that when you go into the abdomen you will exclaim, "Eureka," you think you have found it. Well, probably you will see an ovary that has a few little cysts on it. You will take out those cysts and think you have cured your patient. Now if you will take your patient in a lying down or prone position when you examine them for retrodisplacement or ante flexion or things like that, you will not be able to discover very much. You will make your diagnosis probably as cystic ovary, ovaritis, something like that. After you have opened the abdomen, you will not find the cause. But if you examine the patient in a prone position, the pampiniform plexus has a chance to empty itself. Now in examination if you will be careful enough to examine on the left side, you will take your patient and have her stand upright and examine her in the upright position, you will be surprised to find on the left side in a great many of these cases a soft tumor mass which is a varicecele. Now if after you get the abdomen opened, you will place your finger on the plexus on the left side you will find it walling up and forming a mass. If you destroy that, you will find that you have cured your patient. In a great many cases, as I say, they are operated on for laceration of the cervix or for cystic ovary when it is simply a varicocele, the same as we get in a male patient.

DR. B. L. SULZBACHER, Closing: Gynecologic practice by itself I believe to be the most difficult of all the subdivisions of surgery. In dealing with a woman's genitalia, we are dealing with a bunch of imagination to a great extent. Many times we open an abdomen and do not seem to find anything at all. We open them because we have to, sometimes nothing else seems to help these patients. A very careful examination will show you often that there is bruising, continuous every-day bruising, from a distended sigmoid possibly, of the ovarian covering that in a great meas-

ure accounts for the dysmenorrhea which brings our patients to us. That, of course, means puncture, resection, removal of all those hard portions of the cortex and replacing any abraded portions of the bowels you are able to reach.

I heard the Doctor say something a while ago about the European study of cases. It reminds me of when I was an interne at Landau's clinic for three years. I had made a diagnosis of a prolapsed ovary and a retroversion, exude in Douglas' pouch. Landau promptly asked me what was the color of it. He said, "Didn't you feel the color?" I said, "No, I couldn't feel the color." In a few choice German cuss words, he told me I was something else. Then he told men what he meant. He examined the patient and said the exude was a light brown, feeling the color of the exudate. He was merely putting us on the track of feeling and thinking more closely. He said, "This patient has been having no fever, there is no evidence of an infection, practically no adhesions, this mass is lying loose, therefore it is not purulent; if it is not purulent, what can it be—nothing but a serous exude or possibly a cyst dropped down in there; if it had been of any duration, naturally there would have been some hemorrhages in the wall which would have discolored and made it light-brown; therefore, young man, you must feel the color of your exudate."

Ventral suspensions are practically discarded except in cases of old, atrophic uterus, where there has been a procidentia of the third degree. In those cases our practice is to cut the uterus off, the fundus, entirely, from below the insertion of the tubes, remove it entirely, and stitch that raw surface to the fascia proper; that will hold it; a simple fixation, running a few stitches right through the fundus of the uterus and tying them to the peritoneum. I think that was Kelly's idea of—I forgot what he called it—but it is not servicable, the bowel will come in between and you will have strangulations frequently. Repairs of position will very rapidly take care of any varicoceles or enlargements in the pampiniform plexus. Very rarely have we been able to find them even when the patients were on the table, unless they were excessive. It seems to us that when the venous

drainage, the line, is properly made, the veins empty themselves very nicely.

I cannot agree with Dr. Fowler that this operation is so awfully old. It was first brought out by Howard Hill. He merely went in at the side, made a very small incision, barely large enough to get in a pair of forceps, leaving it held up, but with a very painful vaginal introitus, and when children are born it causes a great deal of trouble.

We left the appendix in this case as we do in every case where the appendix is not adherent to any of the diseased material. We look at it, but scarcely touch it at all, do not even put a piece of gauze into the abdomen for fear of adhesions afterward. Because we do not know what the appendix is for, is no reason why we should take it out without special reason. It is involved, it has to come out; if it is not, let it alone, the same as you do your tonsils.

The repair of a primary laceration at birth is frequently not successful because it is not properly done. I believe in the space of 20 years I can recall only two cases where the repair properly done has not held. Both of these cases were infected. If your cases are clean, they will hold as well at birth as they do at a later time.

ARTIFICIAL FEEDING.

F. H. CRAWL, M. D.
East Las Vegas, N. M.

Read before the section on Practice of the 34th Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 7-9, 1915.

Infant feeding is an old and dry subject to most physicians and one that the average physician would rather get away from if he could. But if he has a general practice he has babies to treat, and if he treats babies, most of his treatment consists of an effort to straighten out some ailmentary tangle. How very true this statement is may be understood when we realize that one-

fourth of the human race dies during the first year of its life, and that almost all of the mortality may be traced directly or indirectly to intestinal disturbances.

As a rule the doctor is not consulted about the food of the baby after his obstetrical visits are over, unless the baby is taken sick. The change from the breast to some artificial food, when made, is directed by the grandmother or some neighbor equally versed in feeding babies having fed all the way from one to ten of her own. The vast majority of babies that we as physicians see, therefore, have been outrageously misfed, and the only reason that more of the little helpless creatures are not either sick or buried is because of their wonderful power of adaptation to the foods that are given them. As it is, the mortality is ten to one as compared with the breast fed baby.

It should be remembered that, during the whole period of lactation, the baby can hardly be said to be leading an independent existence. It is just a step beyond the fetal stage. The new being is nourished, first by the yolk of the ovum, then bathed in the fluid of the amniotic sac, and later receives its food from the blood of the mother through the placental circulation. It is finally nourished from its mother's breast, until it is old enough and its organs sufficiently developed, to partake of the nourishment of its kind. In the marsupials, of which the kangaroo is an example, the young is born in the fetal stage, the mouth becomes at-

tached to the nipple of the mother, and for a time the growing fetus is nourished by breast secretion being forced into the alimentary canal by muscular contraction of the breast. In due time the mouth separates from the nipple, and the baby kangaroo nurses like other mammals, until old enough to eat. Here, certainly, is illustrated the close relationship between fetal and breast feeding. And could this knowledge be more generally disseminated, I think the average mother would hesitate before she attempted to feed an organism of which she knows little upon foods of which she knows, perhaps, less. The point to be emphasized is this, that the artificial feeding of every baby, well or sick, is a physician's business. Infant feeding, as Breppennemann says, is one of the most complex problems in medicine. As such, then, let us approach it.

Let us take, first, the well baby, that for some good reason must be taken from the breast. Let us establish a standard, as nearly as we can, for him. For knowing how to feed such a baby, we have a guide and a goal to indicate our course when some digestive disorder has overtaken him.

Physicians will prefer cow's milk as the substitute in practically every case for the well baby, and with good reason, for it, too, is the natural food of a young mammal; it contains the same food elements as breast milk; it is easy to obtain and easy to modify; and above all it is the cheapest food material.

Comparison of mother's milk and cow's milk:

Mother's Milk.	Cow's Milk
Alkaline	Acid
Germ Free	Many Germs
Proteids 1½%	Proteids 3½%
Casein	Casein
Lactalbumin	Lactalbumin
Lactglobulin	Lactglobulin
Fats 4%	Fats 4%
Carbohydrates, 7%	Carbohydrates, 4%
Specific Anti-	
Bodies—Ferments	None

Let us compare briefly, for the sake of refreshing our memories, the composition of mother's milk and cow's milk. Mother's milk as it comes from the breast is alkaline to litmus paper, but acid to phenothalin; it is germ free; it contains one and one-half per cent of proteid; 4 per cent fat; and 6.5 lactose and a small percent of mineral matter. The proteid consists of casein, lactalbumin and lactglobulin; with the fat is associated a phosphorus containing body, lecthin, and may have a marked effect upon metabolism.

Cow's milk is acid in reaction, contains many germs, sometimes pathogenic ones, with a composition as follows: proteid, 3.5 per cent; fat, 4 per cent; carbohydrates, 4 per cent; with a greater proportion of mineral matter than is found in breast milk. The proteids are made up of the same three proteid bodies, but the casein is greatly in excess of the lactalbumin and lactglobulin. Lactethin is not so abundant. The striking difference between the two milks is the excess of proteid in the cow's milk. But experience in feeding has proven, that in digestibility the proteids, even

in excess, cause little or no disturbance. It is the fat with a percentage practically the same, that is usually at fault.

It must be remembered, too, that mother's milk contains specific antibodies, antitoxins, agglutinins, etc.; also ferments, probably also specific, as one might conclude from the work of Professor Vaughn, such as an amylolytic ferment, a proteolytic ferment, coagulation ferments, which make it a distinctly human food. The fact is, that the farther one goes into the exact composition of mother's and cow's milk, the more certain it becomes, that, while it is possible to so modify the percentage of proteids, fats, and carbohydrates in cow's milk so that they will be identical with those of human milk, the composition is still cow's milk, and differs from the milk of the mother in ways too intricate and subtle for us to alter. We are forced to realize, then, that we cannot make a human milk from cow's milk, nor even a near human milk. And, therefore, instead of having as our aim, in the feeding of a baby, a food that has the same percentage composition as human milk, we must aim to have a food that agrees with the baby, containing all of the food elements, whatever its percentage composition. We must, then, largely discard the old percentage method of feeding so long and faithfully taught in the schools.

In its place there has been developed a much more rational method, based upon accurate scientific estimation of the amount of food needed; and well tested clinical ex-

periences as to the method of its administration.

The facts regarding the amount of food needed are these:

1. A baby for its growth and development, as proven by Allen, needs an amount of proteid equivalent to that contained in from one to one and a half ounces of cow's milk, for each pound of weight, in each twenty-four hours. This does not mean that a baby will grow on from one to one and a half ounces of proteid food alone, but it does mean that whatever else the food may contain of fats and carbohydrates, it must contain this amount of proteid for growth.

2. Huebner of Berlin, found that the energy expressed in calories, required by a normal baby during the first six months of its life, is forty-five calories per pound during each twenty-four hours; after six months thirty-six calories are sufficient. Knowing, then, the equivalent in heat units of an ounce of the various food materials, we have a guide, first, as to the minimum of proteid the food must contain, and second, as to the total energy to be contained in it. The following table contains the caloric value of the most common constituents of baby foods:

Caloric Value of Food Materials

	Calories Per Oz.
Whole Milk	21
Cream, 16 per cent	54
Skimmed Milk	10
Sugar	120
Cereal-Waters	5
Baby Foods	110

Calories Required Per Pound

First 6 mo.	45
Second 6 mo.	36

Now for the facts developed by clinical experience.

1. While the proteid content of cow's milk is high as compared with mother's milk, 3.5 per cent compared with 1.5 per cent, still the baby digests the proteids of cow's milk well. The proteids rarely or never cause disturbance, and may be fed in amounts way in excess of those required for growth.

2. The sugar contained in cow's milk, 4 per cent lactose, rarely or never causes disturbance, but when additional sugar is added, malt sugar is more easily digested than either cane or milk sugar.

3. The fat of cow's milk is not easily digested and when the food disagrees the fat is practically always primarily at fault.

4. The average baby can take a milk and water mixture, containing one-third milk from birth; from three to nine months, a half and half mixture may be used. By the end of the first year, the child should take undiluted whole milk.

5. The interval between feedings in the artificially fed babies should be long; four hours is the best interval even from birth; six feedings up to three months and then five in the twenty-four hours. It takes the stomach about three hours to become empty after a meal of cow's milk, and it should then have a little rest. Anyone who has not tried the four hour interval, has not used one of the best means at his disposal, in the treatment of the vast majority of the intestinal disturbances in babies. It is the sheet anchor against over-feeding, the

most common of all the disturbances with which we have to deal.

6. With the long interval, regularity in the feeding time, 6-10-2 during the day, 6-10-2 at night, and one will be surprised to see the cross fussy baby transformed into one restful and contented. Habit, even in the baby, is a great regulator. I have been surprised to find how often even trained nurses, while they observe the feeding interval prescribed by the doctor, fail to observe regularity in the feeding time. They get started off at a different time each morning, which means different hours all day long.

7. With the long feeding interval, there must necessarily be associated large individual feedings. It used to be taught that the size of the baby's stomach was the guide to the amount of food that the baby should take at one time. This is not true. The vertical position of the baby's stomach permits easy and early passage of food from the stomach to the intestine, and a certain percentage of the food leaves the stomach during the nursing period. The accompanying table will give the size of the stomach and the average amount of food to be given at the different ages:

	Capacity of Stomach	Amount Food
Birth	1 oz	2 oz.
Two weeks	2 oz.	3 to 4 oz.
Three months	4½ oz.	5 to 6 oz.
Six months	6 oz.	7 to 8 oz.
Nine months	7½ oz.	8 to 9 oz.
One year	9 oz.	

Upon these considerations it is a very simple matter to prescribe a food for the normal baby. Let us take two illustrations: First, a

baby one month old, weighing eight pounds. It would require from one to one and a half ounces of milk, per pound of weight, to contain sufficient proteid for growth; in addition, there should be enough fats and carbohydrates to bring the energy equivalent into the neighborhood of forty-five calories per pound, or for this baby 360 calories. Being under three months, the dilution should be one part milk to two parts water. By computation it will be found, that while there is proteid enough, there is not energy enough in from one to one and one-half ounces of whole milk for the proper development of the child, and that from one-half to one ounce of some form of sugar is necessary in addition in the twenty-four hours. And this amount of sugar remains constant during the whole year. With average amounts of the ingredients, then, this is our food:

Child A

Age	One Month
Weight	8 Pounds
Proteid Needed	
That in 10 oz. of Whole Milk.	
Calories	
Calories needed, 8x45	360
Food for 24 Hours	
Whole Milk, 10 oz. x 21	210
Malt Sugar, 1 oz	120
Water, 20 oz.	
Amount of food, 30 oz.	330
Six Feedings of Five Oz.	
Interval, 4 hours, 6-10-2 a. m. and p. m	

Taking now a child of seven months, weighing 14 pounds. Its proteid requirement is that contained in from fourteen to twenty-one ounces of milk. Its caloric requirement is thirty-six calories per pound or 504 calories. It takes a

half milk and half water mixture and needs from one to one and a half ounces of sugar in addition to the milk. The food prescription for this child is this:

Child B.

Age	Seven Months
Weight	14 pounds
Proteid Needed	
That in 21 oz. of Milk.	
Calories	
Calories needed, 14x36	504
Food for twenty-four hours	
Whole Milk, 21 oz. x 21	441
Malt Sugar, ½ oz.	60
Water, 21 oz.	
Amount of Food, 42 oz.	501
Five Feedings of Eight Ozs.	
Interval, Four Hours, 6-10-2 a. m. 12 p. m.	

For the first six months nothing but the modified milk should be given; after that fruit juices may be introduced, a teaspoonful of orange juice daily or a little prune juice. A little later raw or baked apples, meat broths, cereal gruels, a little bacon and strained vegetable soups may be added. Eggs may also be given, and by the end of the first year crackers and white bread.

Of course, in first making the change from the breast to the bottle, the food values must be low, far below the requirements of a child of that age and weight, and must gradually be worked up until values suitable for growth are reached.

Again is must ever be remembered, that these considerations are merely guides to feeding, not hard and fast rules to be strictly followed. Our aim is a food that the child will digest and upon which it will grow, and there is no question but what the vast majority of babies will do well upon the modifications

given, but individual cases may require modifications quite different. Even then the principles laid down, may still serve as a guide, as to the amount of food and especially as a check upon over-feeding.

To determine the fact and the amount of growth, all babies should be weighed once a week. But it is really astonishing how few mothers attend regularly to this important matter. Normally a baby will gain from four to seven ounces a week. It will double its weight by the end of the year. Breast fed babies gain faster during the first six months; bottle babies faster during the last six.

To summarize briefly for the sake of emphasis, the foregoing considerations upon the feeding of healthy babies, these are the conclusions:

A baby should have about an ounce and a half of whole milk per pound of weight during the twenty-four hours. To the twenty-four hour feeding should be added about one ounce of sugar. The dilution of the milk is relatively unimportant, but in the first two or three months the child will usually do best upon a dilution of one-third milk; then a half and half mixture may be used to nine months.

So much for the feeding of healthy babies. When digestive disturbances overtake then, the problem is often most serious, and I shall have time only to touch very briefly upon some of the more important considerations.

Formerly it has been considered that most of the serious disturb-

ances of nutrition were of inflammatory origin. The names in the text-books, gastritis, enteritis, gastro-enteritis, ilio-colitis, reflected this idea; but except in cases of ilio-colitis, very few changes attributable to inflammation or bacterial invasion could be found post-mortem. This lack of findings cast some doubt upon the inflammatory origin of these conditions and Czerny and Finkelstein, by carefully conducted experiments, proved the various food elements to be the causative agents, that all of these disturbances partake of the nature of food intoxications, and that by increasing and decreasing a given food element, the symptoms could be increased or decreased. They found the fats and carbohydrates to be the offending elements.

Upon the basis of these findings they made an entirely new classification of the nutritional disturbances of infants. I cannot go into the details of their work further than this; that the mildest disturbances were classed as weight disturbances; those a little more severe, such as we have been calling gastro-enteritis, were called dyspepsia; the rapid fulminating types, such as cholera infantum, became the intoxications of the new classification. But the important part of this work is not the new nomenclature, but a more rational treatment based upon their new conception of the causation of the trouble. To illustrate this I shall consider only weight disturbance.

Weight disturbance is usually the antecedent of most of the more serious gastro-intestinal disturbances

of infancy. Such disturbance is caused either by under or over feeding, but under feeding is such a rare condition in the artificially fed infant, that it needs no consideration here. On the other hand, over feeding is the rule and is the problem for solution in most of the infants brought to us.

In cases brought for treatment, a history something like the following may be obtained: The baby had nursed the breast for some time, and then did not seem to do well. It was placed upon some artificial food and then began to do splendidly. The mother tells eagerly how rapidly it gained in weight, got fat and stopped fussing. After a few weeks, however, it did not gain any more, though it still looked as fat as ever; it gradually became constipated, or the stools became green and curdy, for which castoria, castor oil, syrup of figs, suppositories and enemas may all have been tried in turn without curing the condition. The baby became cross and irritable again, and perhaps these symptoms alone, or an intercurrent attack of fever and diarrhoea called for a consultation with the doctor.

To consider these symptoms a little more in detail, let us first consider the weight curve. As I have previously said the normal baby gains from four to seven ounces a week. In over feeding the gain may be temporarily greatly in excess of this, followed by a period of no gain whatever. Increasing the food may again cause some gain, but the time soon comes when this no longer happens, and the child enters upon the period of stationary weight. It

should be a matter of concern, rather than of satisfaction, therefore, when the mother reports her baby gaining from a half to three-fourths and even a pound a week, for this is the first indication of overfeeding.

Associated with this is a gradually increasing constipation. When advanced, the movements become dry, hard, white and claylike, and in a typical case the passage may be so difficult that the surface may be blood stained. This is associated with more or less abdominal distension, colic, and a cross and irritable baby. I never saw the condition more markedly developed, than in a Mellen's Food baby, whose mother told me that she had been using the finest kind of rich milk from Jersey cows of their own, and that in spite of this, and fruit juices and cereal gruels her baby boy had been getting more and more constipated, and had not gained an ounce in weight all summer.

These babies have an excess of subcutaneous fat; they look well nourished, but the tissues are really soft and flabby. There may also be the flushed cheek of a beginning eczema, or a well marked case of eczema may already exist.

If one will estimate the caloric value of the food for twenty-four hours in these cases, it will invariably be found way above the requirement for a child of that age and weight.

Often a simple reduction in the amount of food will suffice to overcome the condition, but usually this is not enough. The long period of over feeding has resulted in a de-

creased tolerance on the part of the infant for the various constituents of the food, but especially for the fat.

I like to think of a baby's tolerance for fat as I do of a diabetic's tolerance for sugar. Before he became a diabetic, his tolerance for starches and sugars may be looked upon as normal, but as the disease progresses the tolerance for starch and sugar diminishes, until finally he is unable to ingest any of them, without the appearance of sugar in the urine. Upon a starch free diet, however, he may gradually build up again a tolerance for this food stuff, until, by and by, he may be able to consume normal quantities again. Upon these facts is based our dietetic treatment of diabetes.

In like manner a child may originally be able to take care of the fat contained in whole milk, or even in a top milk mixture, without trouble, but as it is over fed, its tolerance for fat begins to fall, until it may reach a point where it is unable to take care of any of it. In such cases it is best to start the child upon skimmed milk in the same proportion as the whole milk requirement for that age and weight; one and one-half ounces per pound of weight. It is surprising how rapidly the constipation and curds will disappear upon such a change. In a few days whole milk may be very gradually substituted, or the amount of skimmed milk increased until the baby is getting enough nourishment to satisfy its energy requirements. Then will the baby again begin to gain in weight

though it may be consuming only half the former amount of food. If with the substitution of whole milk, constipation or curds again appear, it may be well to substitute malt sugar for the fat and use some cereal water or cereal gruel as the diluent. It must be borne in mind, however, that no baby should be fed for long periods of time on a food lacking in any one of the food elements, and fat should be added to the food as fast as it is possible. With a little attention on the part of the physician and co-operation on the part of the mother, all such cases can be properly handled.

With the dyspepsias and intoxications I cannot at present deal, except to say, that in the presence of fever and diarrhoea, the sugar as well as the fat is at fault, and both must temporarily be removed from the food. It was in search of a fat and sugar free diet, that the "eweismilch" of which so much has been written during the past few years, was introduced.

The discussion of artificial feeding would hardly be complete, without a few words devoted to the subject of baby-foods, and their place in the dietary of the infant. For in spite of all the objections of books and doctors, they are very much used. And successfully, therefore, they must have some merit. It may even be possible that an up to date business, manufacturing a baby food, alive to the needs of the public, may have arrived at a nearer solution of the food problem, for the average baby, than the indifferent doctor who has not given

the subject any special study at all.

I do not think that a doctor should take a hostile attitude toward all baby foods as such. I think he should study them sufficiently to know what is good and what is bad in them, that he may advise his patients intelligently about them, and use them intelligently himself if need be.

There are two main objections to their general use. The first is that a baby may be very improperly fed for long periods of time, by following set formulas of such baby foods especially, as do not require the addition of milk. Thus, undoubtedly, are developed many of the cases of rickets with the structural changes in the bones, that may stigmatize the child even in adult life. Moreover, prolonged feeding with such foods as malted and condensed milk, for example, rich in carbohydrates, poor in fats, may so lower the resistance of the babe, that it falls an easy prey to some intercurrent disorder.

With foods that are milk modifiers, such as Mellen's Food, I have found that there is quite a universal tendency to overfeeding. The fat constipation is overcome by increasing the amount of the baby food, which is essentially a malt sugar, and prolonged overfeeding leads to weight disturbance and dyspepsia as I have pointed out.

The other objection to the use of baby foods is their cost. It costs from eight to twelve dollars a month to feed a well baby after six months upon such a one as Horlick's Malted Milk, for instance. And this is not quite right for poor folks any way,

if there is anything as good or better that does not cost as much.

Baby foods should be emergency and temporary foods, given in acute illnesses, or on journeys when proper cow's milk cannot be obtained, and then should be prescribed by the doctor.

To summarize briefly, I have endeavored to emphasize:

(1) That the feeding of every baby, well or sick, until it is one year old is the business of the physician.

(2) That cow's milk is the preferable food, and that the amount of food given should be controlled by two considerations; first, the proteid required for growth, one and one-half ounces of milk per pound of weight, and second, the energy necessary to be contained in the food, forty-five calories per pound for the first six months, then thirty-six calories.

(3) That the intestinal disturbances of infants are food intoxicants, rather than inflammatory conditions.

(4) That overfeeding is the rule and direct cause of food intoxications.

(5) That the fats are the usual disturbing elements leading to constipation and stationary weight.

(6) That the general and long continued use of baby foods is not advisable, first because they lead to prolonged feeding upon improperly balanced food, and second because of their high cost.

DISCUSSION.

DR. H. A. INGALLS, Roswell. The doctor stated that his subject is an old one, and yet it is one that is ever new. He has stated the facts as we all know them to be and has

presented ideal conditions. We find, however, that in practice the ideal is very slow of accomplishment. On the whole, I agree with the doctor in everything except possibly the interval in feeding the new born. It is true that the stomach is not emptied for a period of $3\frac{1}{2}$ hours—that is, completely—after feeding. Experimental work shows that digestion has been completed as far as the gastric end is concerned, in a period of three and a half hours. It is hard to induce the average mother, if influence is brought upon her by friends, relatives or neighbors, to let a child, if it is sick, go for an interval of four hours between feedings and I think it is not necessary.

The doctor is eminently correct, I think, in the addition of fruit acids to the child's diet if the child is artificially fed. The child, of course, nourished upon its mother's milk needs no addition to that milk until it reaches the proper age. I have no hard and fast rule as to the time when the fruit acids are added to the diet, but I make it a rule to start it in about one month after the child is withdrawn from the breast. The acids are absorbed as carbohydrates and maintain the alkaline in the blood, a very important consideration in the young child.

The addition of the malt sugar has been my practice for some time and I find it is very much better than the old stereotyped feeding that we had of milk sugar.

The ideal condition I do not believe will ever be realized until such time as the conditions in this country are such that each corporation will have a series of physicians who will go among the poor, when we will have laboratories that handle the milk, when we will have municipal dairies—in other words, when the milk is drawn under ideal conditions, cooled each day or after each milking to a given temperature, say 60 or 65 degrees F., and the various laboratory experiments carried out as to the percentage of the various ingredients as well as the bacteriological contents in the milk of the average herd. I do not, of course, include the homes of wealth. The conditions are such now that the mother, no matter how much she may try, never realizes the ideal. She buys milk, perhaps it is true, from the same dairy, but the conditions in that dairy vary from hour to hour, from day to day. The milk when it reaches the

mother varies in its acid content. We, of course, make up the stereotyped modification, we have her weigh the baby and observe it, we make frequent observations of the stools, and all that, but in my experience we have never reached the ideal and never will until ideal conditions are obtained.

DR. JOS. S. CIPES, Albuquerque. The question of feeding babies suggest itself to me as being practically similar to that of feeding tuberculous patients. Three years ago, I tried to make a study of feeding tuberculous patients by means of caloric value. I tried it for several months and finally came to the conclusion that it is a thing that is very good theoretically but not practically. The food that you give and which you think is the caloric value, by the time you get it into the kitchen and it has been prepared has changed in caloric value entirely and you cannot rely on it. The same thing, I believe, is true in the artificial feeding of babies with cow's milk, simply measuring it by the ounce, and saying that baby weighing so many pounds needs so many ounces of milk. In the first place, not all milks are alike, cow's milk in particular. The milk from one cow will differ so much from that of another, and then we do not feed the right percentage, and I believe that we cannot get the right proportions in that way. By taking the milk and measuring by the ounce, we get a difference of carbohydrates from that of mother's milk of practically three times or four times, and I cannot see in any way how we can figure it out by the ounce that we get so much proteids and much fat. As a rule, you will find by feeding babies in that way that there will be very much constipation. You will have a deficiency in the cream and an increase in the proteid and that in itself, I believe, produces constipation in babies. I cannot see how it is possible to figure out the exact percentage to make it equal to mother's milk.

DR. C. E. LUKENS, Albuquerque: I want to congratulate the doctor on his paper. I have no suggestions to make in regard to it only that I hope these tables he has presented here will be incorporated in his paper and that we may find them in the New Mexico Medical Journal with the paper. There is one question that I would like to ask Dr.

Crail, or any one who may answer it. That is in regard to a condition I have noticed in the stools. One day a nurse was telling me about one of our babies—in fact, it has occurred several times since—that the milk was not properly digested, etc., and I asked her to let me see the diaper. She went to get it and when I looked at it was just as green as if it had been immersed in green paint. I upbraided her for not telling me of that condition before and she said: "Well, doctor, that condition did not obtain until I just now looked at it." I have found a number of instances of that kind when commencing hours, at times, at times a few minutes after the passage of the stool the contents of the diaper would turn as green as the stain of green grass, in fact wherever there were liquids from the feces the diaper would turn green. I have not found that mentioned in any text book I have read. I would like to know what is the chemical change and if there is something in the feeding that could be corrected to change the condition of the stool afterward.

DR. W. W. WAITE, El Paso, Texas: In regard to that feeding time, it seems to me that a four-hour interval, especially for infants at birth, is too long. In my own family we had a youngster last year and we tried feeding him at three-hour periods. He immediately lost weight. When we brought him from the hospital at the age of 3 weeks he weighed less than when he was born. It seemed to upset him so that he was in bad shape for a long time. Then, later on, it was almost impossible to get any kind of mixture that would agree with him. We cut down fat and proteids until there were almost none. He was continually constipated. Even the adding of lime water and milk of magnesia did not relieve this. I was a very thorough student of Holt, and Holt said in these cases to use whey and then gradually increase your fat and your carbohydrates and you would not only relieve your constipation but your child would commence to grow. I took his advice and commenced, mostly on whey at first, which has all the albumin and sero-albumin of human milk, almost approaches human milk. Then after a while add a little casein, then when you have your fat as high as you want, two or three per cent as you want, you can add more milk and gradually increase your casein. In this

way, the youngster has done well, but he has been a difficult child to feed and even now, when he is nine months old, if his milk is increased a half-ounce too much it will commence immediately to upset him. He is evidently very sensitive to casein and it takes only a little to upset him. I mix up the milk myself, and my wife will commence to tell me that he is not doing well, not knowing that I have changed the formula—I tell her it is just the same. I have watched it closely and every time if it is pushed up a little too much it will disagree with him. I believe if the casein is cut out and then gradually increased, by using a whey mixture you not only get a sufficient amount of salts and lactine, sero-albumin, but you have something that you can control.

I would also like to add that in using milk where certified milk can be obtained you get a more uniform milk than you can in any other way. It is required that it run from three to three and a half butter fat to the ounce. It is tested at the farm and the herd is stable so that when the milk is mixed you get a fairly uniform mixture. We have been using certified milk for some time and it runs from three and a half to four per cent quite true. There is not very much variation. The bacterial count is not allowed to run over 10,000, but a large part of the time it runs under 1,000. Now if you get common milk running under a 100,000 it is classed as good milk, and many times it is running over a million. So in certified milk you have not only a clean milk, but a milk that is nearly constant in its proportions. It is much easier to make a uniform mixture from day to day than where it is not cared for in the way certified milk is, besides having clean and reliable milk.

DR. F. H. CRAIL. (Closing).—East Las Vegas: I would say first, in regard to the four hour interval, that I did not advocate the four-hour interval in the feeding of breast fed infants, but only for artificially fed babies. That does seem like a long interval, especially to any one who has been in the habit of using a two-hour interval, as I think nearly every one did some years ago; but having tried it and having seen it tried, I am satisfied that within a few days after its commencement one can get on very well in almost any case

with a four-hour interval. There are exceptional babies that will not take the whole of the bottle when it is given them and those babies may get hungry a little before the four hours are up; but if you will remember that what I have said is more of a guide than a hard and fast rule to govern every case, you will not find so much difficulty in agreeing with some of the things that I have said in the paper.

Dr. Cipes says he does not see how we could feed a baby according to the calory method, because he was unable to feed tuberculous patients according to such a method. Now, I hardly believe that the comparison is justifiable. A baby is fed on very simple articles of food, sugar and cow's milk, or a very simple group of articles of food; and tuberculous patients are fed upon a large variety of foods, where the difficulty in estimating the food value will be very much greater than in the case of the baby. Again, I wish to emphasize the fact that the caloric method is not to be used as a hard and fast rule in feeding the baby, but followed as a guide, especially in preventing overfeeding. I have tried many, many times in the feeding of babies under six months to see if they would take more than 45 calories per pound of weight, and found that very, very often digestive disturbances resulted. Of course, some babies can be fed for long periods of time greatly in excess of the amounts needed without showing any disturbance whatever.

The composition of herd milk is quite constant even if it is not certified. It is constant enough so that one can use those figures in estimating what amount of food the child is getting; from a single cow that would hardly be so.

I do not know that I can answer the doctor's question about the green stools except this: that we consider the diarrhoea is usually caused by an excess of carbohydrates and probably the green color of the stools is due to changes not having taken place in the bile pigments before the contents of the bowels were eliminated.

WHAT NEW MEXICO NEEDS MOST IN TUBERCULOSIS LEGISLATION.

LEROY S. PETERS, M. D.
Albuquerque, N. M.

Read before the Thirty-third Annual Meeting of the New Mexico Medical Society, East Las Vegas, N. M., September 6, 7, and 8, 1915.

To attempt to depict the needs of New Mexico along the lines of sane health legislation would require much time and definite patience for the needs are many and great. To depict the needs along the line of tuberculosis requires less time but the demands for such laws is none the less urgent.

The New Mexico Society for the Study and Prevention of Tuberculosis was organized in 1909 at the Roswell meeting of the New Mexico State Medical Society. The organization was affected to promote interest in the fight against tuberculosis and to stimulate on the part of the people a desire for laws offering some degree of protection against the large number of alien consumptives who annually flock to our doors. What, with the scarcity of of the state's population, what, with lack of funds, what, through public indifference the Society has been able to accomplish, is little indeed. After six years existence we have hardly made a beginning in the crusade.

The needs of a state like New Mexico are far different from those of our eastern commonwealths. Here we have a population scarcely

equal to a good sized city and an area greater than the combined states of New England. The needs of the larger centers of population have no interest for us when we consider that our largest city does not exceed twenty thousand people. Owing to our scarcely settled communities the development of tuberculosis among the native born is rare and at present we have but few such cases, at least the percentage is so small that the needs for state, county or municipal sanatoria does not call for our attention.

For the same reasons the care of the indigent consumptive is a small problem as compared with states like Colorado and California. In them the larger size of the cities, as for example Denver and Los Angeles, draws the indigent since the poor usually attracted by the larger centers of population with the expectation of obtaining employment. I believe, too, that the excellent advertising campaigns carried on by a number of our communities are productive of good in an educational way. The booklets sent out in answer to inquiries give the exact condition to be found and state the necessity of having from \$50.00 to \$100.00 per month for at least a year before deciding to come to this state for health reasons. This is far saner advice than is given the average patient by the average physician east and yet it is this eastern man who will condemn this system of advertising as commercial and inhuman.

If you will take time to investigate the poor-houses and county hospitals you will be surprised to

see how few indigents the people of New Mexico are caring for. Of course there are some, and at times one reads of pathetic cases, but in a comparative the percentage is small indeed. To cite an example, in Albuquerque last Christmas a committee of women from which grew the present City Betterment League investigated the deserving poor with the purpose of supplying their wants. In all, over 600 families were fed and out of that number were found but about forty indigent consumptives. Here it may be well to state that in Albuquerque alone we have over 2,500 consumptives. The percentage of poor is so small as to be negligible.

Granting then the foregoing fact, just what does New Mexico need? Primarily, and above all, I would place education, and it is along these lines that the New Mexico Society for the Study and Prevention of Tuberculosis is working. We are endeavoring to educate the people through the churches and schools of the state and through the various women's clubs the fundamental factors in the spread of tuberculosis and the precautions to be taken to effect its control. With the limited means at our disposal we find this a hard proposition but little, year after year, we feel that we are sowing the seeds that will ultimately bear fruit.

Relative to this educational campaign I feel that in the majority of states and in our national organization we have started in the wrong way. Wrong because we have failed to recognize the fundamentals in infection and immunity. In other

words, to use the trite expression, we have the cart before the horse. In the thirty-three years since the discovery of the tubercle bacillus nations and states have been fighting the disease from the standpoint of the adult and the campaign should be begun at the cradle. Infection takes place without question in infancy and childhood and whether tuberculosis becomes a factor or not in the life of a given individual depends upon the immunity conferred at that early age period. Carefully conducted tests and post-mortem observations show the presence of tuberculosis in rapidly increasing percentages from birth to adult life. So common is the infection that after the age of thirty to use the words of a well known authority, "we are all a bit tuberculous." To put the ideas of immunity in simple language we may say that if the dose of tubercle bacilli in the first few days of life is too great for the body to withstand the babe usually dies of tuberculo-meningitis. On the other hand if this stage is passed a certain degree of immunity is established which is protective until such a time when our resistance is lowered by overwork, worry, dissipation or what not and our tubercle bacillus becomes active resulting in clinical tuberculosis with which we are all familiar. Now if we can get just the right amount of infection in early years and the environment in which we live is suitable we do not develop tuberculosis at any period of life, our immunity is protective, an ideal that about six-sevenths of the human possesses. To put it more

plainly when we have broken down of tuberculosis we have lost our immunity for the disease. When we recover we have simply restored that lost immunity.

The lesson to be gained from facts such as these are apparent. First of all the present fear of tuberculosis, the horror of adults in believing that they can contract the disease from one another should be dispelled. If one has reached adult life, association with a tuberculous individual could not give one sufficient bacilli to infect. The immunity conferred early is protective. In other words infection in adults comes from within and not from without. If you break down with tuberculosis you do so by virtue of your own bacilli, which have lain dormant from childhood. Life in the average health resort in the southwest shows us clearly this close association. Here we have wives caring for husbands, or vice-versa, mothers nursing tuberculous children, nurses employed in sanatoria as well as hordes of other employes. Physicians in constant attention upon tuberculous invalids yet we do not see contagion transmitted here. The fact alone as evidenced by the great campaign against tuberculosis that the number of cases does not decrease from year to year but rather the opposite should convince the most skeptical that we are working blind-folded.

Do not misunderstand me that owing to these facts we should be any more lax in our care of the tuberculous invalid. In reality our measures should be more stringent, for we are attempting to prohibit

infant and childhood infection. The human race at this time of life is much more susceptible than at any other period and rather than becoming more careless the masses should be instructed in a greater carefulness. Teach the tuberculous mother or father the crime he or she is committing when they fondle or kiss the baby, when they allow this same baby to come into close association with other consumptives, when they allow sputum laden with bacilli to be carelessly handled in their own homes or when away to carelessly expectorate such bacilli laden sputum upon the street to be carried or inhaled by thousands of other helpless children.

Pages could be devoted to the proof of these new ideas of infection and immunity but suffice it to say that the arguments lie on this side and that the old ideals must be discarded if the fight against tuberculosis is to become effective.

As I have stated before, education is the fundamental factor in the eradication of tuberculosis but education must be aided by sane state legislation. Tuberculosis, of course, is not a disease that can be controlled by legislation per se, but certain laws are necessary and must be passed before results can be obtained.

Here let me digress long enough to say that before we can work successfully in the state of New Mexico we must have laws compelling the proper registration of births, deaths, marriages, etc. The active tuberculosis worker must have a knowledge of the extent, increase or decrease of disease, as the case may

be, its prevalence in various districts and similar data or else he must of necessity be working in the dark. In other words, we are sorely in need of a law on vital statistics. The work of the U. S. Public health service on the migration of consumptives, the report of which was published some time ago shows a woeful lack of such a law in this state. Statistics were practically valueless.

We need a law which provides for adequate and efficient administration of the state board of health as well as the local boards. A law giving each county full time health officers whose only duty is the health of the given community. Without a health officer who is paid enough to devote his entire time to his work the health of the local community will surely be neglected.

Now coming to the specific laws that are needed to deal with the tuberculosis problem alone. First and foremost is the one which would compel the reporting and registration of all cases. In this way and this only can the proper precautions be taken to prevent the spread of infection. Knowing the location of a given case we must have legislation compelling the thorough disinfection of such dwellings, after the removal by death, or otherwise, of a given tuberculosis individual.

As an educational factor we should have state laws for the prevention of expectoration, not alone on sidewalks or in public buildings, but the prevention of expectoration anywhere and everywhere. If it were not for the seriousness of it all it would be amusing to see the signs

in towns and cities providing a penalty for expectoration on the sidewalks and yet the same consumptive who is deterred from sidewalk expectoration will walk to the curb and deposit an army of bacilli in the gutter, on the pavement or in the dusty highway where practically as many bacilli can find favorable lodging in the bodies of unsuspecting childhood. Just why, as individuals, endowed with average intelligence, we should consider that the virulence of bacilli is weakened by a difference in its lodging place I am unable to fathom.

The state should enact legislation appropriating sufficient funds to carry out an educational campaign. By teaching the coming generations the fundamentals of early infection and having inoculated the proper beliefs in the minds of these children a way will be paved to lessen the ravages of this same disease in their offspring.

But the Utopia will be reached when the legislature of New Mexico passes laws for the establishment of isolation of all cases, laws providing appropriations to care for the poor whose bread earner has been removed from their midst, laws prohibiting the marriage of consumptives and lastly laws providing a yearly budget for educational purposes that shall teach the citizen of tomorrow how best to eradicate the most costly and terrible disease.

We do not look for this Utopia in your day or mine. Such sane legislation from our law making bodies in New Mexico can hardly be expected. We shall only be too happy to get a few of the fundamental

laws, relative to the health of our people without which no commonwealth can ever hope for lasting progress. For the same law holds good for states and nations as for individuals, without health all else is lost.

DISCUSSION.

ENURESIS, A HABIT OR A DISEASE.

Dr. C. E. Lukens, Albuquerque.

(Omitted from the February, 1916, number)

DR. E. B. SHAW, East Las Vegas: I have listened with a great deal of pleasure to Dr. Luken's paper and agree with him in his points. I regard enuresis as a functional disorder and a habit that continues oftentimes long after the irritation has been removed. It is common, of course, to all young children and continues until innervation has been acquired, which usually takes places about the second or third year. It is a fact that it continues longer in children of a low mental state, as is proven in the imbecile and the idiots; that its correction is brought about in the vast majority of cases by training and education, although a certain number of cases have points of irritation, as mentioned in the paper, such as adhesions about the clitoris and the prepuce, but even after those conditions are removed, the habit will continue if the education is not followed up. My experience has been that drugs are of little avail. Of course, practically all of the text books recommend belladonna and atropin; but, personally, I have never been able to see any benefit from the use of drugs except in cases of hyperacidity, when the alkalies undoubtedly did good. There is no doubt that the treatments embraced under the head of hygiene almost entirely cover the field. However, as mentioned in the paper, there are a few cases, and I was fortunate enough to be at one of them, that are relieved by surgical measures. I read a paper on that before the society four years ago which was published in the New Mexico Medical Journal. I was not able to put my hands on the Journal; it has been mislaid or destroyed. I will be glad to get the paper for the doctor and it will be incorporated in the paper. It was simply dissecting the mucous

membrane and building up around the perineum, giving more support to the anus. I believe, Doctor, that case was entirely corrected, was it not (Entirely). How long after the operation, do you remember? (Well, it improved immediately; the habit was there, we had not been able by any educational methods to correct it, until the operation, but after the operation within a short time we succeeded in breaking the habit).

DR. C. E. LUKENS, Albuquerque. Closing. —I have nothing further to say except that I had hoped that some of the gentlemen who have handled this proposition for many years might mention something that would aid. Out of the hundreds of children I handle I have yet to find one that did not give me continual bother, at least when a first get them, and some of them are very difficult indeed to break of the habit.

Dr. Shaw stated, as I found, that medicine does not seem to do very much good. However, outside of the suggestive idea and hygienic treatment, undoubtedly operations sometimes are necessary, quite removed from the localization. I was over in Fresno not long ago and a mother told me of her little boy, about six years old, who was nervous, wetted the bed, etc., gave a great deal of trouble, and on looking into the little boy's throat I found a protruding tonsil. I had never seen one just like it, it looked more like some sort of a cyst than it did like a tonsil, sticking out from the throat and nearly filling up the pharynx. It is a thing, in my estimation, sufficient to cause the nervous disturbance that caused the child to wet the bed. However, an eminent surgeon of that region had told the parents that that tonsil was doing no damage whatever to the child, and I wondered how he figured that out under any kind of consideration. I believe in that case an operation on the tonsil would doubtless have relieved the nervousness of the child, manifested in various ways, as well as given it greater power over its whole nervous system.

DR. JOS. S. CIPES, Albuquerque: I would like to ask a question of Dr. Lukens. What does he mean by suggestion, and in what way can he suggest to a child of five or six years?

DR. LUKENS: I find that the child needs

not to be very old before it responds to all kinds of suggestion. I am learning that more and more as I go along. We sometimes foolishly think that all a child needs is arbitrary rule, that we may just lay down a rule and expect a child to follow that rule. Now, I find that when talking to a little patient, a baby—for instance, a two-year-old child I have at the institution, that that child will respond beautifully to just being talked to, to suggestion made in that talk. By these means we find they will not wet the bed nor soil their clothing in any other way; that is, by using all kinds of influence along with the matter of offering rewards of something that the child desires, with suggestion, with working upon the pride, and then just the bare statement, a statement spoken authoritatively to the child's mind, that is not going to do that. It is absolutely a fact; I believe in that sort of suggestion, saying to them that they are not going to wet the bed, that they are going to get up in time. I think there are not many children, even of the most tender years, but will respond to suggestion of moral as well as of physical nature.

DR. F. E. TULL, Albuquerque: I would like to ask the doctor what he would expect as the result in the case of enlarged tonsil that he spoke of from suggestion.

DR. LUKENS: That is one of the cases, doctor, where I would say that you must commence on the tonsil.

THE WASSERMAN AND LUETIN REACTIONS.

Dr. J. R. Van Atta, Albuquerque.

(Omitted from the February, 1916, Issue).

DR. S. D. SWOPE, Deming: For the average doctor the Wassermann test is useless. I think that comparatively few of them know that there are two extracts that answer, the aqueous and the alcoholic. Among the various methods in use, probably the most prominent are Wasserman's, that of Noguchi, of Ross-Jones, and of Saxe, and an occasional new one crops up with a suggestion of some imaginary improvement. I am persuaded that the value of the Wasserman test has been greatly exaggerated. In a large series of cases reported in which the diagnosis was presumably established by clinical evidence, 56.5 per cent only proved positive in pri-

mary syphilis, 88 per cent in secondary syphilis, 80 per cent in tertiary, 51 per cent in the early latent and 47 per cent in the late latent; 94.5 per cent in the congenital, 47 per cent in cerebral syphilis, 70 per cent in tabes dorsalis. It seems that the percentage of positive is a little higher in the Noguchi than in the Wasserman test. We have no assurance that we will get a positive reaction in a case of syphilis, and a certain assurance that we will get a positive reaction in many other conditions, especially acute infectious diseases. We do not seem to have an exact agent for our diagnostic work. I had recently a case of hemiplegia examined for lues. Wasserman of the blood and of the spinal fluid was negative, yet a good pathologist suggested that it would be a good idea to put the patient on anti-syphilitic treatment. I could not see what value there could be in a Wasserman test in that case.

The luetin test has the advantage of being accessible to the practitioner and seems to be practically as constant in its results as the more elaborate laboratory procedure. If Noguchi's luetin reaction proves as valuable as the Wasserman, all the practitioner will need to try its effect will be a supply of the agent, a hypodermic syringe, and a knowledge sufficient to give an intra-dermic injection.

It would seem that mucous patches, specific eruption and gumata are about the surest diagnostic signs as yet developed. I live in hopes that our friends, the bacteriologists, pathologists and laboratory researchers, will be able to clear up many of the at present rather obscure and frequently mysterious conclusions that they have been offering as the pure gold knowledge. I believe in them, but I wish that they would be more positive in some of their conclusions.

DR. W. W. WAITE, El Paso, Texas.—There is much to be said on this subject. There is nowhere to begin and nowhere to end. The facts are something like this. At the present time there are many people doing laboratory work who are not qualified to do it, they are not physicians, they have not had medical training, they have been dealers and assistants, and they go out and take up something they do not know the fundamental principles about. They do not know clinical

medicine, they do not know how to put laboratory finding to the clinical facts. One thing that has helped produce a certain feeling of uncertainty as to these tests is that they produce results one cannot rely upon. We need to have a laboratory section of medicine, classified and regulated like other practitioners, but it is something that has started up in recent years and at the present time there is no organization or body to do that; just how it ought to be done is a question which cannot be easily answered.

Then, in regard to the Wasserman test, it is something like a surgical operation. One surgeon may say that method is the best, another surgeon may say he gets better results with the other method; it is what you know how to do and what you know how to read so that you know your own results. It is what you are the master of that you can get the best results by, and a man who is trying first one and then the other and who does not know any of them is not going to give reliable tests with any. There are certain things that are just as necessary to laboratory work, to do fine work, as there are in surgical technique. To describe them here is a waste of time, because we are not interested, we are people who are not doing that sort of work. But now we have to face the facts, we have not been forming theories, we have seen saying that we wish every test was absolute, but so far as medicine is concerned there is practically no test that is absolute. You take, for instance, tissues coming in for diagnosis in regard to cancer. They think a laboratory man can give a sure diagnosis as to whether it is cancerous or not. Now, any continued inflammatory condition may produce a change in a small piece of tissue that cannot be told from malignant growth and complete histories should be furnished a laboratory man if they expect him to give any opinion of the character. If he simply reports that the tissue shows so and so and lets the clinical man form his own opinion, it is all right; but if he is expected to give an opinion, he should have the whole history of the case. It is the same with the Wasserman test. There are a large number of things that may influence it and we do not know all of them yet and we may never know them all. It is a long continued series of cases that gives us correct data, and if a certain case does not agree with the clinical findings

we are entitled to know it, we are entitled to make a new test with that man because there are certain things which influence a man's blood. It has been shown that testing from day to day the amount of reaction varies; so it might be absolutely negative at some times and positive at other times. We do not know yet how accurate our results are, whether there is a hundred per cent accuracy or a ninety per cent accuracy. But one thing is certain: if things are done under reliable conditions, we have as accurate a test as most other tests are.

For instance, take finding of acid-fast bacilli, as they call them, tubercle bacilli. Well, not all acid fast bacilli are tubercle bacilli. For example, I had a specimen of urine from a young girl that had acid-fast bacilli in several times mixed with some pus and one accustomed to seeing tubercle bacilli would say that was a case of tuberculosis; but on inoculating that urine in a guinea pig there was absolutely no effect obtained. If tubercle bacilli, they were certainly not active. That girl made a complete recovery and if she had had renal tuberculosis she certainly would not so soon have recovered.

In regard to the luetin test, it looks like an easy test for the practitioner to use. When Noguchi first announced this luetin test, I asked him for a supply and he let me have considerable. We tried it on a number of cases. In some cases, we got fine results; in others, the results were questionable. I reported the latter as positive because that is what they seemed to be, but I doubt in my own mind now from watching those cases three years and seeing them at different times whether several of them were syphilis or not. Another thing in regard to the luetin test, it may take two weeks before you read your reaction, you may have to look at him every day for two weeks to find out whether you have got a positive reaction.

DR. J. R. VAN ATTA. (Closing).—Dr. Waite has very ably answered most of the things brought out by Dr. Swope and I thoroughly agree with what Dr. Waite has said about this matter, not only about the Wasserman in different laboratories varying greatly because the man in charge at that laboratory does not have direct supervision of them but turns the work over to some boy

that he hires, for example. I think that in a great many instances accounts for confusing results, and it takes but a very few of those to make the man who has sent the test in feel that they are valueless.

Now to my mind there is not another test in medicine of today that is of more value than the Wasserman reaction. There are a great many cases of syphilis that can be proven only by a Wasserman that in all probability would have gone over with no diagnosis if it were not for the Wasserman test. I know one laboratory in my home town that is having a great deal of trouble and it is having trouble for the very reason that the man has a dealer in charge of his serum work.

As to the Noguchi, as I said before, I feel certain that it cannot be taken as a test compared with the Wasserman at all and unless a man is doing a great many of them it is not very satisfactory in his hands and in no way compares with the properly done Wasserman test.

DR. HUGH CROUSE, El Paso, Texas: I am going to cite three cases which I think will illuminate some of the doubts of Dr. Swope. I had a young gentleman who was married, father of three children, one of three, one of five, the other a baby, come to me with a lump in the testicle. The question when he presented himself for surgical intervention was whether it was sarcoma, tuberculoma or syphiloma of the testicle. He was a gentleman who was a deacon of the church. I stated to him, examination being complete, that in all probability he had syphilis. "Well," he says, "doctor, it is impossible." We took a specimen of his blood and it was negative. I tapped his testicle, as there was a little bit of hydrocele there—positive; with one drop; spinal fluid, also positive. That gentleman under the influence of iodides and proper antisyphilitic treatment cleared up. His children never gave any reaction of syphilis. He then confessed to me that he had never had illicit relationship except once when he was an university student and was taken out by his uncle and he had had illicit relationship with a prostitute, followed by a small lesion on his foreskin.

Another case, referred to me by Dr. ———, for thorough going over, gave a history of an auditory lesion, of deafness gradually increas-

ing and progresing. I went over him very carefully. His was a borderline case of cerebral ataxia. I said, "I am certain of my diagnosis," after testing him with various nerve reactions, etc. We took his blood, negative; spinal fluid, weakly positive. Under proper salvarsan, mercurial and iodid treatment, the gentleman's hearing returned.

Another case belonged to the same group, of blindness developing with a nerve lesion. This case was gone over very carefully. Each of these cases denied ever having had any specific lesion. This gentleman with the ear trouble finally admitted that twenty years before he had had a small lesion on the glans penis. Now, just these cases, my friend, Dr. Swope, would be unable to diagnose; the deafness would have gone on to total disability, the blindness would have supervened, the testicle would have been destroyed, unless there had been this reaction by the Wasserman test.

REMOTE DEATH FOLLOWING ELECTRIC SHOCK.

Dr. H. A. Ingalls, Roswell.

(Omitted from the February, 1916, Issue).

DR. WM. P. MILLS, East Las Vegas: I received Dr. Ingalls' paper and read it over. After I had read his paper, I began to look up the subject and tried to find some thing on the remote effects of electric shock. My library is not very extensive and I was unable to find anything in the books which I have dealing with the subject, either the remote effects of electric shock or from a stroke of lightning, except one case where the author spoke of a man who was taken sick two months after he had this shock. This paeient developed marked symptoms of traumatic neurosis and was the only case that I could find in such literature as I had at my command. In my practice I have known of two men struck with lightning. With one of them I had a talk. He apparently had no ill effects from it, but had several scars on his body which he exhibited to me. He did not consult me professionally and I simply talked with him as any one else would in a casual conversation. The other one of whom I have spoken was killed outright and there was no autopsy performed in his case. Up at the Insane Asylum I have, since I have been there, had one patient sent to me in whom the cause

of insanity was ascribed to a stroke of lightning and I regard it as quite likely that if a man was truck by lightning he might afterward become insane.

Discussing this case that caused Dr. Ingalls to write the paper, I am inclined to believe that it was due to the increased blood pressure, especially in the brain and upper portion of the body, as that has been established as one of the four causes of death from electric shock. From all that I can understand, one is by the ventricular fibrillations, which is the action on the heart; another is by the paralysis of the respiratory centers; another is by direct rupture of some of the vital organs; and the other, and this is really a secondary consideration under that head, would be the congestion of the blood in the brain. In a case occurring in New York state, when the autopsy was performed large quantities of blood were found in the cranial cavity and that was ascribed as the cause death in that one particular case. I do not doubt in the least but what this prominent citizen of Roswell suffered a weakening of the walls of the cerebrum that from some slight exertion he had cerebral hemorrhage, and that would be my explanation of the cause of death.

DR. J. W. KINSINGER, Roswell, N. M.: I was personally a victim of a stroke of lightning. In my first year af practice in medicine, I was riding horseback to visit a sick woman and half way to my destination I was attacked by a flash of lightning, and struck off my horse unconscious, the horse also being struck unconscious. I got up and got on my horse and proceeded, but I do not remember anything at all about it. Nevertheless, in my great anxiety to get to one of the first medical cases in my life, I presume that in some way I struggled on. I reached my destination and on my arrival there became unconscious and lay unconscious for about twelve hours. This was followed by a spinal soreness in my case for nearly a year. Whether it was in the cord or the other structures of the spinal column, I could not say. I presume it was in the latter, because I had no mental depression or other effects from it except that I fell asleep quite easily. That lasted, perhaps, for two or three months. I was young and vigorous and it soon wore off after the first

year. I have never had any ill effects from it except the fear of another stroke. I am afraid of lightning. It is a pretty severe punishment and it was to me the severest punishment I have ever had and I have had a good many. I could not say whether the spinal soreness was in the substance of the spinal cord, whether it was due to a hemorrhage into the meninges of the spinal cord, or whether it was the frame structure, but I am inclined to think now after many years of thinking over it that it was probably due to some congestive condition of the vessels of the cord.

DR. JOS. S. CIPES, Albuquerque: I would like to ask Dr. Ingalls or any other gentleman who can answer why it is that people who have been struck by lightning after the stroke should become so sick—some of them vomit, some of them have severe headaches—during storms. I would like to know if any one can explain that, why a thing like that happens in these people who have been exposed to lightning.

DR. J. W. KINSINGER, Roswell: I forgot to mention that I do not think I vomited, not to my recollection anyway, but I had an extreme nausea. On recovering consciousness, the first thing I felt was dizziness and nausea. I remember the first thing I could see were tables turning round. That is the reason I gave my opinion that there was probably some congestion or probably some hemorrhage. I could not say now, because it has been a long time since, whether I vomited or not, but I remember distinctly the nauseated feeling I had for perhaps several days after I became conscious.

DR. CIPES: Do you get a feeling of nausea on the approach of a storm at the present time?

DR. KINSINGER: No. I have never had symptoms since the attack except a fear of lightning.

DR. H. A. INGALLS, Roswell: In reply to the doctor's remark, the only thing that I could give as accounting for the nausea that these people suffer on the approach of a storm is that on recollection of reproduction of the shock is produced by fear. We know

that we are nauseated from that particular emotion and I presume that would be the explanation to give the doctor, that it is purely reflex from fear.

NEW AND NONOFFICIAL REMEDIES.

During February the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

W. L. Cummings Chemical Co.:

Radium Bromide
Radium Carbonate
Radium Chloride
Radium Sulphate.

Borcherdt Malt Extract Co.:

Borcherdt's Dri-Malt Soup Extract
Borcherdt's Dri-Malt Soup Extract with Wheat Flour.

Borcherdt's Soup Powder.

Since publication of New and Nonofficial Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies:"

Lysters Prepared Casein Diabetic Flour.—Milk casein to which has been added a leavening mixture, sodium chlorid and saccharine. Used in the form of muffins in diabetes, etc., Lyster Brothers, Andover, Mass. (Jour. A. M. A., Feb. 26, 1916, p. 653).

Antistreptococcus Serum Rheumaticus, Squibb.—Produced from strains of streptococcus from the joints and blood of cases of rheumatism. The serum is intended for use in cases of acute articular rheumatism. E. R. Squibb and Sons, New York (Jour. A. M. A. Feb. 26, 1916, p. 653).

PROPAGANDA FOR REFORM.

Hypochlorites in Infected Wounds.—Dakin points out that he claims no credit for the "discovery" of the "new antiseptic." He explains that the "new antiseptic" was discovered by Berthollet in 1788. The solution used by Dakin and others is essentially the well-known Labarraque's solution or solution of chlorinated soda. The claims as to the efficiency of the various modifications which are being used in France and England are decidedly contradictory. The one conclusion

which all results with the various hypochlorite solutions appear to justify is that hypochlorites, whether applied in an acid solution, in an alkaline solution or in a neutral solution, are of genuine value in the treatment of infected wounds. (Jour. A. M. A., Feb. 5, 1916, p. 430).

Oxybon Declared Fraudulent.—On January 15, 1916, a fraud order was issued by the postmaster general against the Oxybon Company, Chicago. The Oxybon was one of the gas-pipe frauds, which included the Oxydonor, the Oxypathor, and the Oxygenor. (Jour. A. M. A., Feb. 12, 1916, p. 526).

The Therapeutic Value of the Hypophosphites.—At the request of the Council on Pharmacy and Chemistry, Dr. W. M. Marriott, Johns Hopkins University, has examined the evidence for and against the therapeutic value of the hypophosphites. Experiments were carried out to determine the "food" value of hypophosphites. The hypophosphites were introduced into medicine by Churchill in 1858 on the basis of an incorrect theory and utterly insufficient and inconclusive clinical evidence; their use has been continued without justification by any trustworthy evidence for their efficiency. By actual trial on human subjects Marriott shows that at least 85 per cent of the ingested hypophosphites are excreted unchanged. Further, he holds that there is no proof that the remaining 15 per cent is available to the organism. It is doubtful if there are any conditions in which the body suffers from lack of phosphorus. Marriott concludes that there is no reliable evidence that hypophosphites exert a physiologic effect; it has not been demonstrated that they influence any use, that use has never been discovered. (Jour. A. M. A., Feb. 12, 1916, p. 486).

The Effect of Opium Alkaloids on Respiration.—D. I. Macht has reinvestigated the effect of opium alkaloids on respiration. He divides the alkaloids of opium in two classes: In the one class is morphine, the prominent sedative alkaloid, which may not interfere with efficient respiration when the dose of the drug is small. In contrast with this are narcotin, papaverin, narcein, thebain and cryptopin, all of which are stimulants and in large doses are excitants of the respiratory center. Codein belongs to the morphin class, though in large doses it may also excite the respira-

tory center. The action of mixtures of opium alkaloids is a summation of their individual effects. It thus appears that if the object sought is a reduction of the labored activity of the respiratory muscles in a given case, the drug opium itself or mixtures of its alkaloids are to be preferred to morphine alone. If, on the other hand, it is desired to diminish the excitability of the cough reflex mechanism, it seems that a simple substance, as morphine or codeine, is to be preferred. (Jour. A. M. A., Feb. 12, 1916, p. 514).

Fermented Milk.—While there is no conclusive evidence that *Bacillus bulgaricus* is able to establish itself in the intestine in such a way that other bacteria are driven out, it is undoubtedly true that in many cases marked improvement has resulted from the ingestion of milk cultures made from it. It is by no means certain, however, that the results which have been obtained by the use of milk cultures have been attributable to any particular virtue in the organism itself. The beneficial effects of a sour-milk diet is attributable, perhaps, not so much to the bacteria contained in the milk as to the milk itself, which provides material for an acid fermentation in the intestine. Fermented milk is so well tolerated in many cases that their use should in general be encouraged from the standpoint of nutrient values, quite apart from the problematical "auto-intoxication" propaganda. (Jour. A. M. A., Feb. 19, 1916, p. 574).

Diarsenol.—Diarsenol, Synthetic Drug company, Toronto, Canada, is said to be chemically identical with salvarsan. It has not been examined in the A. M. A. Chemical Laboratory nor do any reports of trials appear to have been published which demonstrate its value or safety. As salvarsan is covered by United States patent the American agents for salvarsan will probably object to the sale in the United States of a substitute. (Jour. A. M. A., Feb. 19, 1916, p. 590).

Genoform.—Genoform, advertised as a remedy for rheumatism, gout, neuralgia, etc., is marketed with the claim that it is split up in the intestines into salicylic acid, acetic acid and formaldehyd. The statement of composition is too indefinite to permit any real insight into its possible reactions, but even if formaldehyd is liberated in the intestines, Genoform could not have the properties

which are claimed for it. (Jour. A. M. A., Feb. 26, 1916, p. 676).

Tanlac.—Food Commissioner Helme of Michigan reports: "A new panacea for the cure of 'all ailments of the stomach, kidneys and liver, catarrhal affections of the mucous membranes, rheumatism, nervous disorders and the like' is offered to the public under the name of Tanlac. The label on the bottle neatly avoids the pure drugs act by claiming to be only a 'tonic and system purifier.' An analysis of Tanlac in the laboratory of this Department shows the following: Alcohol, 16.4 per cent.; Glycerin, 2.0 per cent.; Licorice present; Aloes or Cascara present; Gentian present; Alkaloids (Berberin) trace. The presence of a trace of tartaric acid shows that wine is the base of this medicine. The 16 per cent. alcohol gives it the 'kick' that makes a fellow feel good and ought to fill a long felt want in 'Dry Counties.' Aloes is a laxative. Gentian is a bitter drug, a so-called tonic. If the reader wants to be cured by the Tanlac route at one-fourth the expense, let him get a quart bottle of good sherry wine. Then go to the local druggist and get 1¼ drams of glycerin and 2 drams each of aloes, gentian, licorice and cascara. Mix. (if you wish) and you will have Tanlac so near that neither you nor the manufacturer can tell the difference. This formula will give four times the quantity found in an ordinary \$1 bottle of Tanlac. (Jour. A. M. A., Feb. 26, 1916, p. 676).

INFECTIONS IN TUBERCULOSIS.

The modes of infection in Tuberculosis are discussed by M. P. Ravenel, Columbia, Mo. (Journal A. M. A., Feb. 26, 1916). Formerly only the lung infection was seriously considered and the older observations showing other routes did not receive due consideration until after the British Congress on Tuberculosis in 1901. Ravenel says the fixing of the portal of entry by the so-called oldest lesion is to be questioned. Practically all observers agree that in children there is a marked tendency to general dissemination of the disease, and it is hard to tell which is the first point attacked. As regards the form in which infection is carried, all agree as to the importance of sputum and dust and the mouth spray of coughing. Infection from the digestive tract was first noticed in 1846, and a rather detailed statement of the experimen-

tal facts is given. Koch's view that bovine tuberculosis was not a menace to public health has led to a vast amount of study, throwing light on the gastric and intestinal entrance of the germs, and this is now considered one of the most important of the perils. The frequency of infection through the tonsils has been called into question by von Pirquet, but practically all experimental observers have noted the susceptibility of the tonsils to tuberculous infection, and Ravenel considers the evidence as very conclusive. It is difficult to determine the exact period of tuberculous infection, but the opinion seems to be increasing that it takes place principally in infancy and childhood. The von Pirquet tuberculin test is largely responsible for this belief and it is widely held that 90 per cent of children are infected before 14, and some have said that later tuberculous is only a recrudescence. A large number of statistics are given, and it is impossible, Ravenel says, to escape the conviction that childhood is pre-eminently the time of life when the germ obtains its foothold in the body. As regards adult infection, fairly accurate information can be obtained by the careful study of groups of individuals of good family history, but who are especially exposed. From the observations of physicians in hospitals, of which some data are given, and of married couples, it would seem that adult infection is rare or comparatively so. Karl Pearson's review of the figures of E. G. Pope brings in the question of assortative coupling and outside infection, which complicates the matter of marital infection. Ravenel's conclusions are as follows: "1. The evidence at hand indicates that in the majority of cases the respiratory tract is the route of infection in tuberculosis. 2. The alimentary tract is a frequent portal of entry for the tubercle bacillus. 3. The tubercle bacillus is able to pass through the intact mucous membrane of the alimentary tract without producing a lesion at the point of entrance. This takes place most readily during the digestion of fats. 4. The bacilli pass with the chyle through the lacteals and thoracic duct into the blood, which conveys them to the lungs, where they are retained largely by the filtering action of the tissues. 5. Infection through the alimentary tract is especially frequent in children. 6. Infancy and childhood

are preeminently the periods of life when the individual is susceptible to tuberculous infection, and the majority of cases of infection occur during these early years. 7. Any campaign against tuberculosis which leaves out of consideration the protection of children against infection will fail of success. 8. Tuberculous infection in adult life occurs, but not so frequently or readily as generally believed. 9. Tuberculous infection may occur at any age."

Book Review

DISEASES OF THE SKIN

Diseases of the Skin, by Henry H. Hazen, A. B., M. D., Professor of Dermatology in the Medical Department of Georgetown University, etc., 233 illustrations including 4 color plates. St. Louis, Missouri. The C. V. Mosby Company, 1915.

Doctor Hazen has written a most acceptable book on Diseases of the Skin. Particular attention has been given the more common ones while the rarer ones are touched upon only slightly, some of them having been omitted entirely.

The author has prepared a book that will be of value to both the general practitioner and to the student. There is much to commend in a work that is written from a practical standpoint as this one is and from the study of the actual material at one's command.

The illustrations are clear and for the most part from original photographs. The press work is all that could be desired.

POST-MORTEM EXAMINATIONS.

Post-Mortem Examinations. By William S. Wadsworth, M. D., Coroner's Physician of Philadelphia. Octavo volume of 598 pages with 304 original illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$6.00 net; Half-Morocco, \$7.50 net.

It frequently becomes the duty of the general practitioner to make post-mortems and to interpret the findings and the number able to do this intelligently is only too small.

The author of this latest work on the subject of Post-Mortems brings to the preparation of his book a wealth of material derived from the study of some four thousand post-mortems. He has prepared a most excellent volume and one that will appeal directly to the reader.

The contents are embraced under six divisions, the first treating of Death and Changes in the Dead Body, the second dealing with Technic, the third discusses the Examination of the Body, the fourth takes up the question of Special Conditions and Lesions, the fifth considers Medico-Legal Post-mortems and the sixth touches on Photographs, Weights and Measures, Repair of Body, Conclusions and a list of Useful books.

The entire work shows careful and conscientious labor with a view to the production of a book of real value and in this the author has been most successful. It is a book the general practitioner should not fail to have at his command and one that he will read with pleasure and profit even though he is never called upon to do post mortem work.

A TEXT-BOOK OF PHYSIOLOGY Sixth Edition Thoroughly Revised.

A Text-Book of Physiology: For Medical Students and Physicians. By William H. Howell, Ph. D., M. D., Professor of Physiology, Johns Hopkins University, Baltimore. Sixth Edition Thoroughly Revised. Octavo of 1043 pages, 305 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$4.00 net; Half Morocco, \$5.50 net.

The sixth edition of Doctor Howell's Text-Book of Physiology has been thoroughly revised to make it conform to the recent advances and progress in physiological science. The author tells us in his preface to this edition that most of the changes will be found in the section upon Nutrition and Internal Secretions. A careful reading of these sections will convince one that the work has been well done, the major part of the latter section having been entirely re-written.

From the Treasury Department of the Government we have received a copy of the Annual Report of the Surgeon General of the

Public Health Service of the United States for the fiscal year 1914. The report details the operations of the Public Health Service for the year 1914.

From the Bureau of Medicine and Surgery of the Navy Department we have received a copy of the Report on the Medico-Military Aspects of the European War by Surgeon A. M. Fauntleroy of the United States Navy. The observation upon which this report is based were taken from behind the allied armies in France. The report is particularly interesting and valuable at this time when military preparedness is being so widely talked. It is particularly well illustrated.

POWERFUL ANTISEPTIC AND DISINFECTANT.

A solution of Parke, Davis & Co.'s Germicidal Soap containing 1:5000 mercuric iodide, the active ingredient, destroys pus-producing micro-organisms in less than five minutes. The soap has been tested with pus, cholera, typhoid and diphtheria germs, and anthrax spores, and in hundreds of experiments none of the germs survived two minutes. The tests referred to were made with solutions representing but one part of the antiseptic material in each five thousand parts. In proportion to the amount of antiseptic contained, this soap is held to be the most powerful germicide and disinfectant available. The assumption is based upon comparative tests with other well-known antiseptics.

It is apparent from the foregoing that Germicidal Soap, P. D. & Co., has a wide field of usefulness in medical and surgical practice. Obviously it is more than a soap, more than a germicide. Indeed, as one writer has said, it is an antiseptic, a disinfectant, a cleanser and a lubricant in one. It is serviceable for sterilizing hands, instruments and sites of operation; for lubricating sounds, specula, etc.; for vaginal douching, as it tends to dissolve pus, blood and mucus, whereas most other germicides coagulate then; as a disinfectant wash after attendance upon cases of communicable disease; in the treatment of skin infections of parasitic origin; for cleansing surface lesions associated with fetid discharge; for neutralizing the odors of offensive perspiration; for shampooing the scalp

and hair; for the destruction of parasites; for sterilizing bed linen and cleansing cuspidors, bed pans and other utensils of the sick room. In short, whenever a powerful antiseptic, disinfectant, detergent or deodorant is needed, Germicidal Soap, P. D. & Co., would seem particularly applicable.

Germicidal Soap is supplied in two strengths containing respectively one per cent and two per cent of mercuric iodide. If a cake of the latter be rubbed in water until a heavy lather is formed, the solution will be approximately 1:5000. The soap has an important advantage over most other powerful antiseptics in that it does not coagulate albumin or corrode nicked or steel instruments.

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